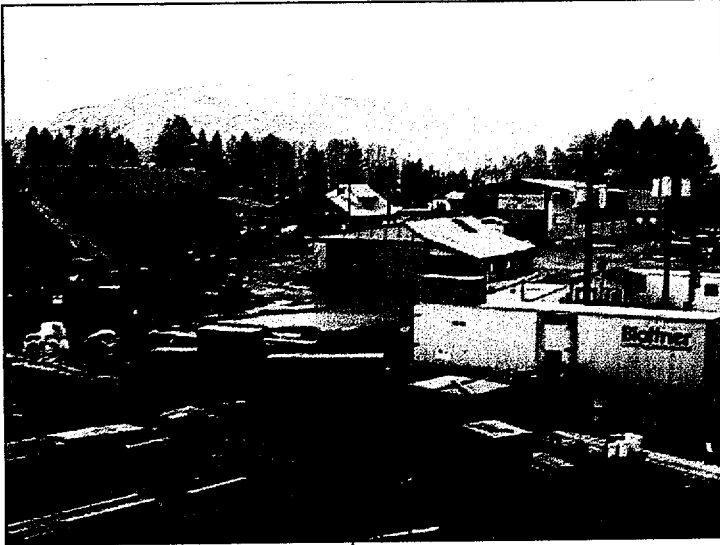


486773

ADMINISTRATIVE RECORD

GRACE



Revised Draft Work Plan

*Removal and/or Abatement of
Asbestos and Vermiculite
at the Libby Asbestos Site*

Prepared for

W.R. Grace & Co.

3 July 2000

URS

486773

ADMINISTRATIVE RECORD

REVISED DRAFT

**WORK PLAN
EXPORT PLANT REMOVAL ACTION
LIBBY, MONTANA**

Prepared for:

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3 July 2000

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List of Acronyms

AIM	Asbestos impacted materials
AHAs	Activity Hazard Analyses
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Standards
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
CIH	Certified Industrial Hygienist
CQC	Construction Quality Control
EPA	United States Environmental Protection Agency
ft	foot/feet
HEPA	High-efficiency particulate air
HSP	Health and Safety Plan
NCP	National Contingency Plan
MDEQ	Montana Department of Environmental Quality
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OU	Operable unit
PCM	Phase contrast microscopy
PjM	Project Manager
PPE	Personal protective equipment
PTO	Power train operation
QA/QC	Quality assurance/quality control
RI/FS	Remedial Investigation/Feasibility Study
SAP	Sampling and Analysis Plan
SHPO	State Historical Preservation Office
SMS	Safety Management Standards
SOW	Scope of Work
SSO	Construction Supervisor/Site Safety Officer
TWA	Time-Weighted Average
UAO	Unilateral Administrative Order
USACE	United States Army Corps of Engineers
USC	<i>United States Code</i>

1.0 Introduction

This Draft Work Plan describes activities associated with a removal action at the Export Plant in Libby, Montana, and related disposal activities at the former vermiculite mine. Specifically, this Plan describes actions that will be conducted to mitigate asbestos impacted materials (AIM) at the Export Plant previously owned and operated by WR Grace and Co. (Grace) in Libby, Montana. The AIM is a result of historical vermiculite mining, storing, processing, and transportation conducted on and around the property.

The scope of the work is based on the Unilateral Administrative Order (UAO) for Removal Response Activities prepared by the United States Environmental Protection Agency (EPA) on May 23, 2000, Region 8, Docket No. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-8-2000-10. The UAO contains a Scope of Work (SOW) prepared by the EPA with the assistance of the Environmental Engineering Division (DTS-33) of the John A. Volpe National Transportation Systems Center (Volpe Center).

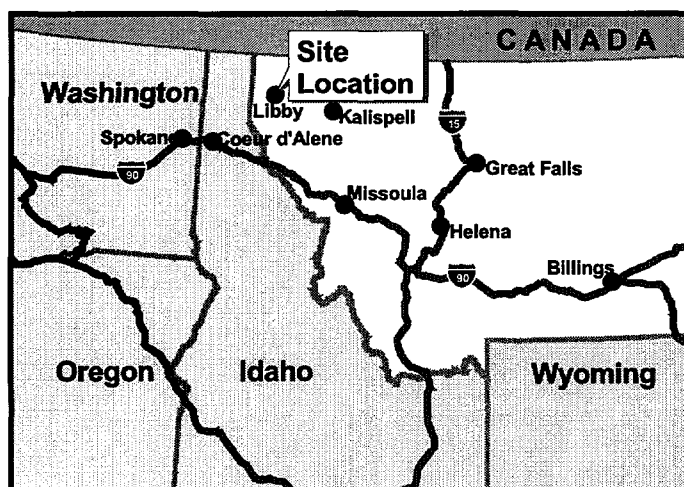
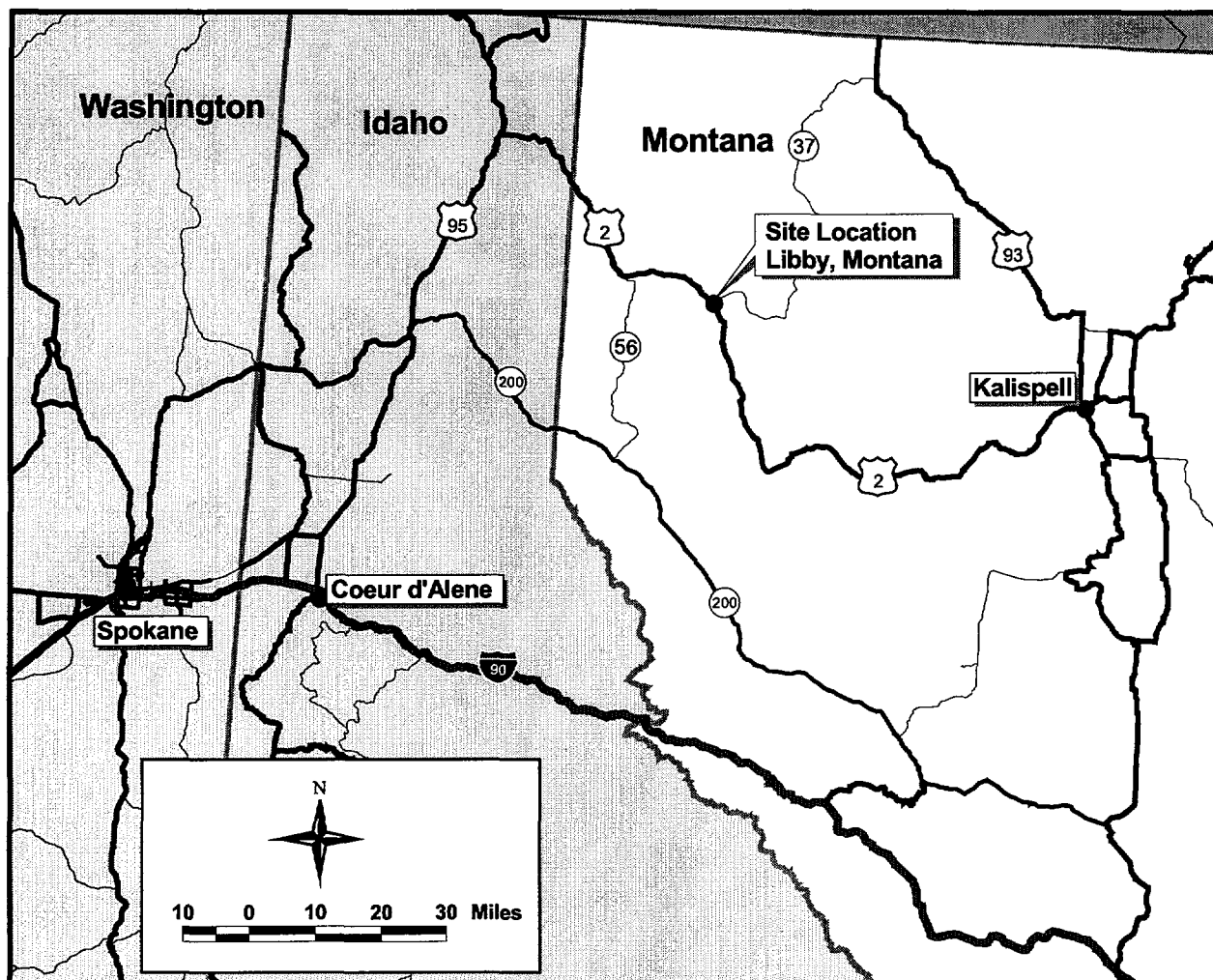
The primary activities required by the UAO as described in the incorporated SOW are:

- Temporary relocation of the on-site business at the Export Plant;
- Preparation of Site property (e.g., power, access roads, etc.);
- Cleaning (abatement) of affected buildings/contents, and structures;
- Excavation of asbestos impacted soil, debris and vermiculite;
- Preparation of a disposal location at the mine;
- Transportation and disposal of waste; and
- Property restoration at the Export Site.

Each of these activities will be addressed in Section 2.0 of this Draft Work Plan as well as the accompanying appendices.

1.1 Site Location and Description of Property

Libby, Montana, is located in the northwestern part of the state approximately 35 miles from the Idaho border to the west and 65 miles from the Canadian border to the north (**Figure 1-1**). The Site is located within Sections 3 and 10, T.30N1, R.31W. of the Libby Quadrangle in Lincoln County. The primary road through Libby is State Highway 2. Libby sits on the



**Figure 1-1. Site Map
Libby, Montana**

FILE NAME
libby.apr

DATE
28 JUNE 2000

DR. BY
JLC

Kootenai River and has a population of approximately 2,500 residents. According to the Chamber of Commerce, some 12,000 people live within a 10-mile radius of Libby. The local economy is supported primarily by logging and mining operations in the surrounding area. Libby is also the Lincoln County seat.

The Export Plant, which will also be referred to as Operable Unit 01 (OU 01) is located on the northern edge of Libby (**Figure 1-2**). The Export Plant occupies between 11 and 12 acres adjacent to Highway 37 where it crosses the Kootenai River. It is bounded on the north by athletic fields which are no longer used, and the Kootenai River; on the south by the Burlington Northern Railroad track; on the east by Highway 37; and on the west by State of Montana Property. The property is owned by the City of Libby, Montana and is currently home to a tenant retail lumberyard and building material supplier (Millwork West Company). A second tenant uses the small shed on the property for storage. Five buildings are located on the property and are currently used to house finished and rough lumber, a milling operation, a retail center and miscellaneous storage.

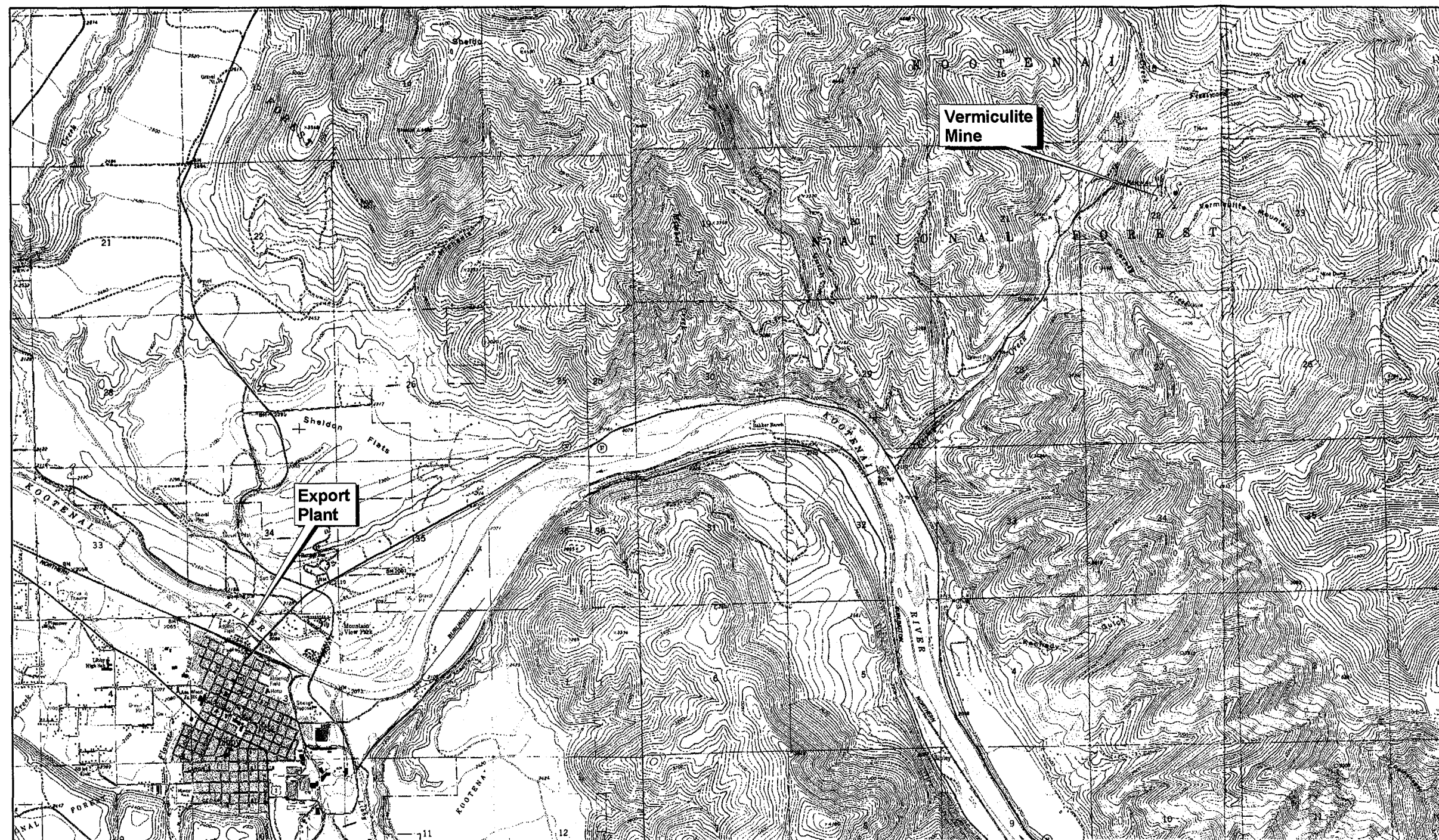
The buildings on the site are basically wood construction with wood and/or corrugated steel siding. They include the Pole Barn, Old Vermiculite Storage Warehouse, Large Lumber Warehouse, Operating Planer Shop, and Small Shed. The property may also contain the footprint of a demolished shed. The locations of each of these buildings are shown on **Figure 1-3**. The approximate dimensions of each of these buildings are indicated below.

Designation	Description	Approximate Dimension	Area (ft²)
Pole Barn	Wood framed open-faced structure with corrugated steel siding and roof. Built on steel reinforced concrete slab.	66 ft. x 120 ft.	7,920
Vermiculite Storage Warehouse	Wood framed with wood siding and roof covered with corrugated steel. Built on concrete slab with concrete piers supporting beams and girders.	40 ft. x 100 ft.	4,000
Lumber Warehouse	Wood framed with corrugated metal siding on interior and exterior walls. Roof is corrugated metal on wood joists. Built on concrete slab.	50 ft. x 60 ft.	3,000
Planer Shop	Wood framed with wood siding. Two rooms, used for lumber storage and planing. Roof corrugated steel. Built on concrete slab with concrete piers.	70 ft. x 80 ft.	5,600
Small Shed	Wood frame with wood siding and roof. Corrugated steel roof. Concrete slab possibly including a "filled" 6 ft. x 6 ft. sump.	36 ft. x 50 ft.	1,800

Color Map(s)

The following maps contain color that does not appear in the scanned images.

To view the actual images please contact the Superfund Record Center at (303) 312-6473.



0.5 0 0.5 1 Miles

Reference: U.S. Geological Survey,
Libby and Vermiculite Mountain Quadrangles, Montana
7.5 Minute Series Topographic Maps

Figure 1-2 Site Locations

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IMAGERY COVER SHEET
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(303-312-6473)

SITE NAME:

LIBBY

REPORT OR DOCUMENT TITLE: REVISED DRAFT WORK
PLAN, REMOVAL AND/OR ABATEMENT
OF ASBESTOS & VERMICULITE AT THE
LIBBY ASBESTOS SITE

DATE OF DOCUMENT: 07/03/01

DESCRIPTION: OVERSIZED GRAPH (1)

Much of the site is covered by a crushed aggregate base material placed and compacted into access roads and parking areas to provide adequate base during wet weather. Very little, if any, vegetation exists within the Export Plant site, except for the baseball fields located on the northwest half of the property (no longer used). Access roads, telephone service, water (including a hydrant), sewer systems, and electrical power are available.

The former vermiculite mine is located approximately 7 miles northeast of Libby. Access to the mine is via Highway 37 and Rainey Creek Road. This access road is primarily compacted gravel.

1.2 Facility History

Gold prospectors in the Libby, Montana, area in the late 1800s discovered the mineral vermiculite on a mountain which became known as Vermiculite Mountain. The unique characteristics of the mineral, including its expansive properties when heated, flame resistance, and moisture retention capacity, led to commercial mining operations near Libby, which began in 1923 by Mr. Edward Alley. The primary use of the vermiculite was for insulation and soil amendments, and the processed material was known by the name Zonolite.

In 1939 the Universal Zonolite Insulation Company was formed in Libby, and production from the mine approached 100 thousand tons per year. In 1948 Universal Zonolite Insulation Company changed its name to the Zonolite Company. Production by the Zonolite Company reached 150 thousand tons per year in 1950.

The vermiculite was strip mined using conventional equipment and processed in an on-site dry mill to remove waste rock and overburden. The processed ore was trucked down Rainey Creek Road to a screening plant that separated the milled ore into five sizes, depending on its intended use. The material was then shipped to various cities around the country for direct inclusion into products or for expansion (also known as exfoliation) prior to use in products. The vermiculite ore was found to contain amphibole asbestos fibers of the tremolite-actinolite-richterite-winchite solid solution series (amphibole asbestos).

Grace purchased the Zonolite Company in 1963. In 1974, Grace completed construction and began operations at a new "wet" mill facility in Libby. Expansion operations at the Export Plant ceased prior to 1981 and the area was used only for packaging and exporting milled material after that time. Operations at the mine and processing facilities ceased in 1990, and

reclamation work was initiated. In 1994, the mine site was sold to Kootenai Development Company. At about the same time, the Export Plant property was sold to the City of Libby.

1.3 Recent Regulatory Developments

In response to local concerns and media reports of asbestos-containing vermiculite, EPA Region 8 sent an Emergency Response Team to Libby in November 1999. In December of 1999, the EPA collected approximately 700 samples from the mine site, processing plants (including the Screening Plant and Export Plant), and residences. Samples included air, soil, dust, and insulation. Additional samples were collected in March and April 2000. Some 2,000 samples have been collected by the EPA to date.

Soil sample results released in late March indicated the presence of asbestos within the Export Plant boundary. Based on tables provided in the May 23 Action Memorandum, soil was collected from approximately 71 locations within OU-1. Samples of soil containing asbestos at a concentration equal to or greater than 2% were found at 16 locations. Asbestos was not detected or detected at less than 1% at the remaining locations.

The EPA prepared and sent Grace a Draft Administrative Order on Consent (AOC) for Removal Action dated 25 February 2000. The Order was prepared under the authority of the CERCLA with EPA Region 8 taking the lead for coordinating, overseeing, and enforcing requirements of the AOC. This AOC required cleanup activities at two sites, the Export Plant and the Screening Plant Site. Following additional discussions and negotiations with the EPA, Grace elected not to sign the AOC as noted in a letter to the EPA dated April 18, 2000.

The EPA issued the UAO in late May, 2000. The UAO is specific to the Export Plant Site. EPA has assumed responsibility for removal actions at the Screening Plant Site. The UAO includes a Scope of Work and "planned" schedule of activities. A Draft Work Plan was prepared in response to the requirements of the UAO, and submitted on 6 June 2000. Formal comments were received from the EPA and Montana Department of Environmental Quality (MDEQ) on 16 June 2000. This revised Work Plan addresses the comments received.

1.4 Work Plan Organization

This Work Plan has been prepared by URS Corporation, under the direction of Grace in response to the UAO. Section 2.0 of this Work Plan provides the technical work scope planned for abating AIM at the Export Plant and disposal of AIM at the former mine or an alternate site in Spokane, Washington. Subsection 2.1 presents the removal action technical specifications,

2.2 describes the Sampling and Analytical Plan, 2.3 presents the Health and Safety Plan, and Section 2.4 contains document control requirements. Sections 3.0 and 4.0 present the project Organization and Schedule, respectively. Appendices have been included with task-specific operating procedures. The Appendices will provide detailed Health and Safety procedures and sampling and analytical QA/QC specifications.

Additional Task Plans contained in the appendices are:

- Appendix A—Sampling and Analysis;
- Appendix B—Health and Safety;
- Appendix C—Building Decontamination Feasibility;
- Appendix D—Building Abatement/Decontamination;
- Appendix E—Traffic Control;
- Appendix F—Dust Control;
- Appendix G—Erosion Control;
- Appendix H—Document Control;
- Appendix I—Appraisal and Property Valuation; and
- Appendix J—Site Restoration.

The original Statement of Work (SOW) required preparation of a Test Pit Excavation Plan. However, the requirement to excavate test pits has been eliminated in favor of an agreement to excavate known “deep” pockets of vermiculite, as described herein. A specific “Site Control Plan” has not been prepared, however, various site control procedures are described in the Health and Safety Plan, Building Decontamination Plan, Traffic Control Plan, and Document Control Plan. The Building Decontamination Plan also provides additional details of the equipment and personnel decontamination procedures.

The revised draft Work Plan describes procedures that will be followed for completing all of the removal action requirements specified in the UAO and the referenced EPA SOW. The appendices provide even more detail related to sampling/analytical QA/QC, Health and Safety, and specific operations.

2.0 Scope of Work

This Work Plan includes the detailed definition of scope, schedule, deliverables, and organization to implement the required decontamination of buildings, removal of asbestos containing soil, debris, and vermiculite, and restoration at the Libby Asbestos Site Export Plant, OU01. The Plan also includes transportation activities and placement of removed AIM and soil at the former mine location. However, a final decision regarding the disposal location has not been reached. As an alternative, the AIM and soil may be transported to a licensed asbestos landfill in Spokane, Washington. The Work Plan was prepared in accordance with the Unilateral Administrative Order and associated SOW prepared by the EPA Region 8 (Docket No. CERCLA-8-2000-10) dated May 23, 2000.

The UAO specifies seven main activities that must be completed as part of the Removal Action:

- Temporary relocation of the on-site business at the Export Plant;
- Preparation of Site property (e.g. power, access roads, etc.);
- Cleaning (abatement) of contaminated buildings/contents, and structures;
- Excavation of contaminated soil, debris and vermiculite;
- Preparation of disposal location at the mine;
- Transportation and disposal of waste; and
- Property restoration.

Based on existing industry standards and practice, Grace is confident that building cleaning and abatement is a viable approach for adhering to the requirements of the UAO. As such, building demolition is not being considered as part of this Work Plan. Each of the buildings on site will be cleaned and abated by a licensed abatement subcontractor. Following cleaning, verification testing will be conducted per existing AHERA requirements as modified by the EPA for this removal action.

The approach developed by URS utilizes a work breakdown structure (WBS) with 17 individual tasks which will be described in Section 2.1. The WBS includes all of the work defined by the EPA as part of the UAO. The work will be performed by URS Construction Services Division, West Region, headquartered in Denver, Colorado. The selected certified asbestos subcontractor will be ACandS, with independent air monitoring support provided by

Koch Environmental Health, Inc. (KEH). Additional subcontractor support has been arranged as follows:

- Survey – Kootenai Surveying, Inc.;
- Analytical laboratory – RJ Lee
- Appraisal - J. Virginia Messick, MAI; and
- Local suppliers of technical expertise will be used whenever feasible.

It is important to note that Grace has not made a final decision regarding the disposal of the AIM. The mine site is a possibility, and an agreement with the regulatory agencies and owner is being pursued. Grace may elect to transport and dispose of the AIM at a licensed landfill in Spokane, Washington. If disposal at a landfill is selected, the EPA will be notified and this Work Plan will be amended accordingly.

2.1 Removal Action Technical Approach

This section describes the activities that will be conducted to complete the removal action. The section is divided into 17 individual tasks.

2.1.1 Task 1 - Project Planning

Drafts of work plans are being provided to the EPA and MDEQ. Prior to initiation of the removal action, specific plans will be finalized and approved by EPA. At their discretion, the EPA may consult with the MDEQ.

The following sections provide a general description of ten task-specific plans that have been prepared as part of this Work Plan. The plans are presented in Appendices A through J. The plans will be updated and revised throughout the project in response to unforeseen site conditions and/or scope of work modifications. Any proposed modifications to the plans will be discussed and approved by the EPA OSC prior to their implementation.

Sampling and Analytical Plan - Appendix A

The types of samples that will be collected and analyzed to support the removal action include background air samples, daily ambient air samples, health and safety air samples, final clearance air samples, and soil verification samples. Section 2.2 describes the scope of the planned sampling program. Prior to initiation of the removal action, a detail Sampling and Analytical Plan will be completed and attached as Appendix A to this Work Plan.

URS plans to use the services of an independent monitoring firm, KEH, to collect and analyze the background, daily ambient, and final building clearance samples. URS will collect and analyze samples for health and safety purposes. URS will coordinate with the EPA regarding the collection and analysis of soil verification samples. It is anticipated that URS will collect the samples and utilize the services of an outside laboratory such as RJ Lee for soil analysis. The number of soil verification samples collected will be agreed upon during consultation with the EPA OSC.

Health and Safety Plan - Appendix B

The HSP will be developed and implemented in accordance with the Occupational Safety and Health Administration (OSHA) Standard 29 Code of Federal Regulations (CFR) Part 1910 and Part 1926, and all relevant federal and state OSHA requirements. The HSP will be prepared by a URS Certified Industrial Hygienist (CIH). It will contain sections on equipment and personnel decontamination for URS operations. A specific HSP will also be prepared by the abatement subcontractor ACandS for their activities. The ACandS Plan will be reviewed and approved by the URS CIH.

The Health and Safety Plan (HSP) will contain specific procedures to be implemented to restrict access to the work areas and to establish work zones around individual buildings and the soil excavation areas. A specific section of the plan will address the required 8 to 10 days per month of planer operation to ensure adequate protection of the tenant personnel while the removal action and asbestos abatement proceeds.

Building Decontamination Feasibility Plan – Appendix C

Standard industry practice allows for the abatement and cleaning of materials and structures which are found to have asbestos fibers on their surfaces. Regulations exist that specify procedures for testing and inspecting materials and structures once they have been cleaned. Although asbestos abatement regulations are not necessarily applicable to this removal action under CERCLA, Grace and URS believe cleaning the structures at the Export Plant is a more feasible option than demolishing the buildings. Appendix C describes why cleaning was selected over demolition and the benefits of this option.

Building Decontamination Plan – Appendix D

Each of the buildings at the site will be cleaned in a sequential manner. URS will establish an exclusion zone for each building at the Export Plant during decontamination of the contents of that building. Decontamination will involve the use of high efficiency particulate air

(HEPA) vacuum cleaners and/or wetted rags. Equipment and materials will pass through the decontamination zone for cleaning prior to transport to the Sprung structure for storage. The decon area will be enclosed and will have decon equipment and a negative air system. Water used will be filtered prior to being released to the sanitary sewer. After each item is cleaned it will be passed to personnel in the clean zone and subsequently transported and stored in temporary storage (Sprung structure).

All cleaned items will be visually inspected and certified clean prior to staging in the Sprung structure. Inspection will be by an asbestos inspector certified in Montana. Inspection results will be documented and signed by the inspector.

Items which have been determined to be non-salvageable will be removed from the structures and staged in the contaminated materials storage area or transported directly to the mine disposal site or the landfill in Spokane, Washington.

After the contents of each building have been removed and cleaned, decontamination of the building will be performed. Asbestos insulation, dust, and vermiculite in walls and supports will be removed, bagged, containerized, and staged in the contaminated materials storage area. It will be readied for transportation and disposed at the mine site when adequate quantities have been accrued to maximize transport efficiency. Decontamination will involve the use of HEPA vacuums, wetted rags/mops, and power washers. The work will be conducted so that no visible dust emissions are observed. Following cleaning, the interior surfaces of each building will be sealed (encapsulated) using a sprayed on encapsulant. Once each structure is cleaned, verification procedures will involve visual inspections and air sampling. Details of the building decontamination are provided in Appendix D.

Traffic Control Plan - Appendix E

The Traffic Control Plan is written for mine site disposal. If an alternate location is chosen, the plan will be modified as appropriate.

Access to the Export Plant will be restricted to personnel associated with the Removal Action. A designated parking area will be maintained for vehicles. The primary traffic control activities will be associated with the road leading to the mine disposal site. URS will utilize a dedicated Traffic Control Foreman and three laborers (flagging) stationed near the mine site and at the base of Rainey Creek Road to control traffic on this stretch of roadway. It is anticipated

that the primary traffic, in addition to trucks hauling waste from the Export Plant, will be logging trucks.

The Foreman will have responsibility for insuring communication between the waste trucks hauling material from the Export Plant and other traffic on this road. Flagmen will be utilized to restrict traffic as necessary when trucks are inbound or outbound. The flagmen will use radios to maintain communications with each other, the trucks, and the Foreman.

Additional traffic control procedures are documented in the Traffic Control Plan attached in Appendix E. URS will coordinate with local traffic control officials as appropriate to minimize truck traffic impacts on the local community and to avoid conflicts with summer highway improvement projects.

Dust Control Plan - Appendix F

Portions of the Dust Control Plan are written for mine site disposal. If an alternate disposal site is selected, the plan will be modified appropriately.

Appendix F describes and presents details of the Dust Control procedures to be used. A water truck will be dedicated to dust control maintenance on Rainey Creek Road and the mine site once disposal activities are initiated. Coordination of the water truck will be the responsibility of the Traffic Control Foreman. Current plans involve using the hydrant at the Export Plant for water supply. A temporary water storage tank will also be installed at the mine site and fed by the mine site well for use in filling water trucks. Magnesium chloride liquid will be used as a road dust suppressant. Alternative water supplies will be evaluated during mobilization activities, including the use of the Export Plant Pump House or river water. Grace has a water usage agreement in place with the City for supply.

Air monitoring and visual observations will be conducted on a routine basis to verify that dust control measures are adequate at both the Export Plant, the mine disposal site, and along the road in between.

During excavation activities at the Export Plant, dust suppression will be accomplished using either a dedicated water truck, hoses connected directly to a hydrant at the site, or river water. The project team will work with city officials and the EPA to establish meteorological parameters (wind speed and direction) during which excavation activities may be performed. URS will provide a Meteorological Station.

Erosion Control Plan – Appendix G

Erosion control measures will include the use of berms, hay bales, diversion ditches, silt fencing, etc. to minimize both runoff and runoff of precipitation during the removal action. Special attention will be paid to insuring that runoff into the Kootenai River is prevented. Because of the relatively level ground in the vicinity in Export Plant, erosion is not anticipated to be significant during the cleanup. Any soil that is staged on site during excavation work will be moistened and covered with plastic. Additional specific erosion control procedures and locations of barriers are documented and included in Appendix G to this Plan.

Document Control Plan – Appendix H

URS will implement strict document control procedures for the duration of the work at the Export Plant. Documents will be managed in both hard copy and electronic format. Access to field log books and daily report forms will be restricted to specified URS personnel and regulatory representatives. URS will maintain a Document Control and Quality Assurance Specialist at the site to oversee the this task. Appendix H provides details of the procedures to be followed.

Appraisal and Property Valuation Plan – Appendix I

A personal property inventory and appraisal will be conducted prior to the removal action. The plan for this appraisal is included in Appendix I.

Site Restoration – Appendix J

As allowed under the reporting schedule provided in the UAO, the Restoration Plan will be submitted within seven weeks of the Work Plan approval date.

2.1.2 Task 2 - Project Management

The Project Management Team will include an on-site Project Manager that will have primary responsibility for interfacing with Grace, the regulating community, and community interest groups. The project manager will ensure that the work is accomplished safely and in accordance with the requirements of the Work Plan and UAO. The project manager will also be responsible for the quality of work, including personnel and environmental health and safety, documenting all activities and, tracking costs and schedule.

The project manager will be supported by a home office Program Manager, a Project Control Specialist, an Engineering Coordinator, a Construction Manager, and a Field

Superintendent. URS will also maintain an onsite QC/Document Control Specialist and a Traffic Operations Foreman. Weekly progress reports will be prepared for submittal to the regulating agencies. All project documentation will be maintained on site with copies sent or faxed to the home office in Denver.

As part of the management task, URS will consult with the EPA regarding the need for any local, state, and/or federal permits that might be applicable to this effort. URS will also review the Applicable Relevant and Appropriate Standards (ARARs) in detail with the regulatory representatives to ensure that the work is accomplished according to current regulatory requirements.

2.1.3 Task 3 - Mobilization

The mobilization task will involve moving URS personnel and equipment to the Export Plant, as well as coordinating the mobilization of subcontractors and local suppliers. URS anticipates setting up an on-site office trailer and utilizing an existing office space downtown. The downtown office will be used by the Document Control Specialist to maintain the project files in locked, flame-proof file cabinets. Electrical power will be brought to the office trailer. The trailer will be equipped with lights and office machines including a copier, faxes, personal computers, bottled water, and a refrigerator. A room in the trailer will serve as a conference room for weekly meetings with subcontractors and regulatory representatives. Storage of health and safety equipment and other supplies will be provided in separate lockable Connex.

Portable toilets will be leased through a local supplier. The toilets will be set up outside of an exclusion area so that personnel will be required to pass through a decontamination zone prior to accessing the facilities. The number of toilet seats and urinals will be determined in accordance with 29 CFR 1910.120(n)(3)(1). There will also be a minimum of three with hand washing facilities. Toilets will be emptied and cleaned on a routine basis under a contract with a local vendor.

2.1.4 Task 4 - Site Preparation

Under this task, URS will establish traffic patterns, parking, and equipment laydown areas to optimize safety and efficiency. Exclusion and decontamination zones will be established in accordance with the HSP (Appendix B). Staging areas will be established, fenced, and posted as appropriate. Fencing will be set up to delineate equipment staging areas and materials storage areas as required. Runon/runoff controls will also be put in place.

At a minimum, the following "areas" will be established during site preparation activities:

- Construction equipment storage area;
- Storage area for AIM that will be disposed. Area will be lined with 20-mil plastic and surrounded by a berm constructed of sand bags;
- Hazardous materials storage area (for storing materials such as fuel, oils, chemicals). This area will be lined with 20-mil thick plastic and surrounded by a berm constructed of sand bags for spill control;
- Recyclable materials storage area (for items that can be salvaged, recycled, and/or reused);
- Personnel decontamination facilities for asbestos operations. This area will include showers, eyewash stations, personal protective equipment (PPE) storage, tables, chairs, and lockers (as needed);
- Equipment decontamination facilities. One facility will be constructed at the Export Plant and one at the mine disposal site. Each pad will be plastic-lined, covered with a minimum of 1 inch of gravel, and drained toward a sump for water collection. Collected water will be filtered before release; and
- Structural decontamination facilities will consist of drains around the perimeter of each building slab to contain decontamination water. Plastic sheeting will be used as necessary on the exterior walls of the structures to contain overspray and to mitigate dust.

Personnel decontamination facilities for use during asbestos abatement will be provided so that workers can decontaminate themselves during work breaks and at the end of each shift. The facilities will be located with each building to be cleaned. Both male and female facilities will be provided. Each facility will be equipped with a clean room, shower, and dirty room. Water will be provided. A negative air system will prevent asbestos fibers from entering the clean room. Shower water will be filtered to remove asbestos prior to discharge to the environment. Workers will remove their clothing in the dirty room, step into the shower room, and then enter the clean room. These facilities will be available for project personnel as well as federal and state agency personnel. A separate personnel decontamination trailer will be brought to the site for use during soil excavation. The Health and Safety Plan describes this facility.

Equipment decontamination facilities will be constructed at both the Export Plant and the mine disposal site if it is utilized. Any heavy equipment will be required to be decontaminated prior to leaving the site. The decon pad will be established with a water collection system. All visible material/soil will be washed off of each vehicle while parked on the pad. Collected water will be filtered before discharge. The pads will also be used for the inspection and

decontamination (if necessary) of trucks as they leave the export plant or mine site (if used) during debris hauling and disposal. The location of the pads will be determined during development of the Traffic Control Plan.

2.1.5 Task 5 - Site Support Services

Site support services includes all those activities associated with providing equipment, survey and appraisal as defined below. Additional details of specific activities are provided in the appendices.

Equipment

Under this task URS will lease necessary equipment and set up services to support the removal action. Leased equipment will include copy machines, desks, chairs, file cabinets, fax machine(s), bottled water, meteorological stations, etc. URS will also establish cell phone service, hard-wired phone service, electricity, field radio service, toilet maintenance and dumpster service, etc. As part of this task, URS will also lease heavy equipment from local vendors as available, including an excavator, backhoe, dozer, hydraulic hammer, fork lift, rubber tire loader, field trucks, and pumps and hoses. Local laborers will be hired to support the project as necessary, including equipment operators and mechanics.

Nesting Birds

Several nesting swallows were observed in one of the Export Plant buildings. URS will consult with the Montana Fish and Game Division to determine if special procedures will be needed regarding these birds. It is anticipated that cleaning of this building may be postponed until after the newly hatched swallows have fledged.

Survey

A detailed property line survey and topographic survey will be prepared by Kootenai Surveying, Inc., a registered surveyor in the state of Montana. Physical features of the export plant and mine site will be located during the survey, including all structures. The information will be made available in hard copy and AutoCAD. The surveys will be used to establish air monitoring locations, limits of work areas, and prepare grading and erosion plans for operations and restoration.

Historic Artifact Assessment

URS will retain the services of a qualified natural and cultural resources specialist to conduct a historical and archaeological assessment of the Export Plant property. This assessment

will be completed and reviewed prior to initiating any subsurface activities. The results of the assessment will be used to determine the need for special procedures that might be put in place in conjunction with the excavation plans. As necessary, URS will coordinate with the State Historical Preservation Office (SHPO) to complete the property assessment.

Site Security

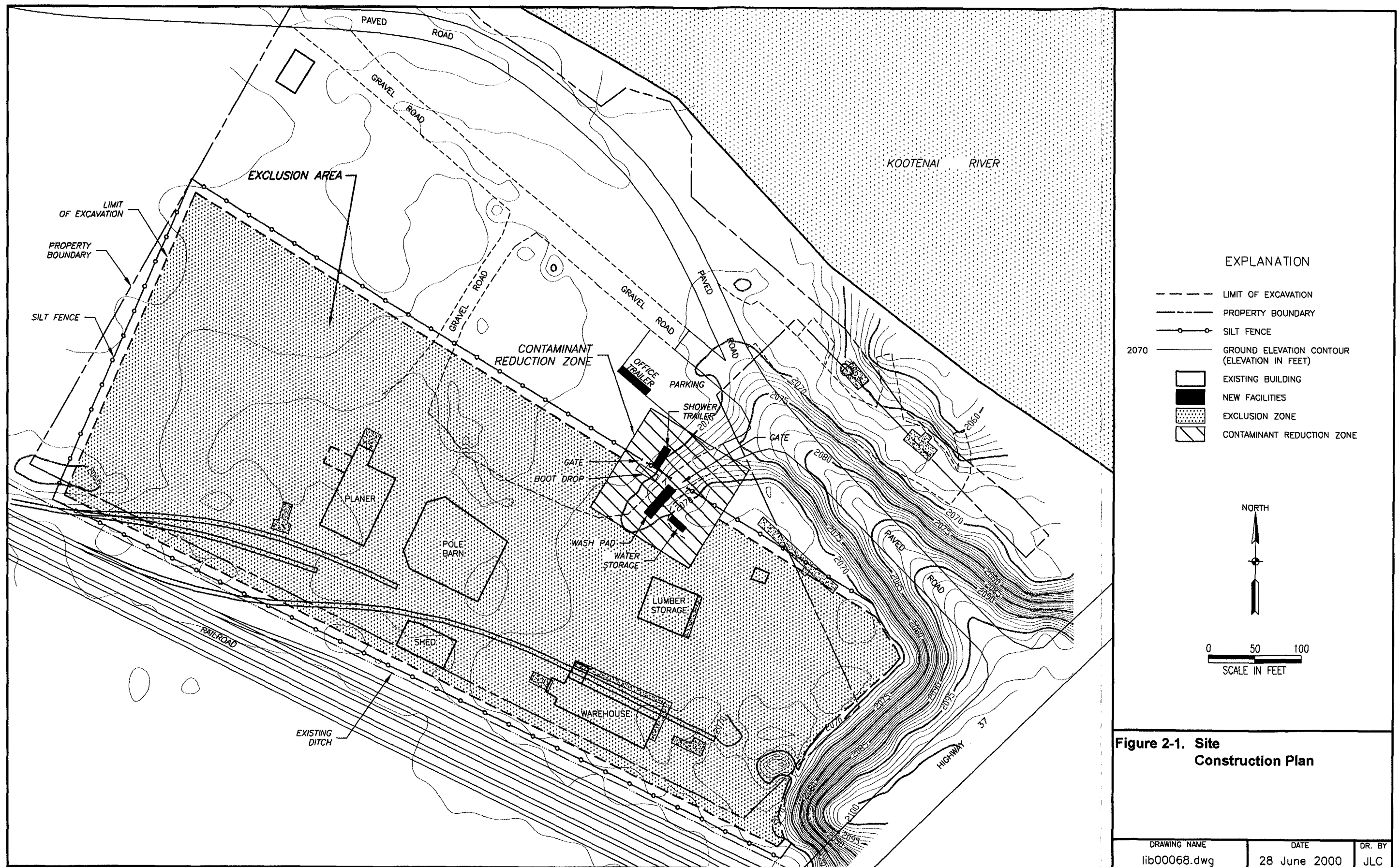
Upon mobilization, the Export Plant will be enclosed by an orange snow fence and silt fence except for construction entrances. The property is bound by the railroad to the south, a road (Hwy 37) with a steep embankment to the east, and heavy growth to the west. Construction access will be from the north on roads with restricted access and egress. This area will be under surveillance from the field office trailer. Access and egress roads to the Export Site exclusion zone will be barricaded with lighted barricades at night.

If the mine site is selected for disposal, the access road to the mine, at the transition to Rainey Creek Road, will be manned during operating hours and will have the gate locked at the end of daily operations. On weekends, Saturday is anticipated to be an operating day and on Sunday one person will make an unscheduled inspection of the site and mine to verify barriers are in place and the site is secure. The PjM and local police will be notified in the event of any breach of security and appropriate action will be taken. Additional information is provided in **Figure 2-1** and in the Traffic Control Plan (Appendix E).

Appraisal

In accordance with the Appraisal and Personal Property Validation Plan presented in Appendix C, an inventory of items belonging to the current tenant(s) at the Export Plant will be made by a certified appraiser. EPA will provide photo documentation in support of this effort. Items will be placed into the following three categories:

- No value - The owner agrees that these items have no value and does not want any replacement. These items shall be disposed of as asbestos containing material at the former mine site or the landfill in Spokane, Washington.
- Of value and can be decontaminated - These articles shall be thoroughly decontaminated by washing followed by visual inspection prior to their relocation to the temporary storage facility (Sprung structure).
- Of value but not compatible with decontamination procedures and more economical to dispose - These items shall either be replaced or the owner shall be provided with fair replacement value compensation established by the appraiser. The original item



shall be disposed of as asbestos containing material at the mine site or the landfill in Spokane, Washington.

Additionally, the needs of the road contractor temporarily on-site will be evaluated for relocation elsewhere on-site in an uncontaminated area. Final relocation will be coordinated with the contractor, city, and the EPA. Based on recent discussions, URS anticipates that the City will assume responsibility for the relocation.

2.1.6 Task 6 - Furnish/Install/Operate and Maintain Sprung Structure

Grace will purchase and install a self supporting Sprung structure (or equivalent) approximately 85 feet by 230 feet. The structure will be erected at a location to be selected by the city of Libby. The structure will include anchors, exhaust fans, two sliding cargo doors, lighting, and multiple personnel doors. A compacted, gravel base will be prepared for the structure to sit on. Electrical utilities will be provided for internal lighting and ventilation.

The structure has been sized to accommodate all of the tenant materials and will be used to stage "cleaned" material from the lumber planing operations. The interior of the structure will be set up so that materials are stored in accordance with the desires of the planing operation owner. A vehicle wash pad will be established between the exclusion zone at the export plant and the clean zone. A flatbed truck will be used to move material from the Export Plant buildings to the wash pad and into the clean area where the Sprung will be located.

2.1.7 Task 7 - Pole Barn (Building 1) Decontamination

The Pole Barn (Building 1) will be the first building cleaned by URS to remove residual asbestos fibers. The building is approximately 66 feet by 120 feet and is used to store lumber. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and the Building Decontamination Plan attached as appendices.

Prior to conducting any work at the site, URS will compile an inventory and appraisal of the quantity and quality of the materials stored in the building. Contents will be identified for either cleaning or disposal. In addition, a building inspection will be conducted to identify the presence of other hazards (e.g., chemical, electrical, mechanical) that may be present in the building. Once the appraisal, inventory, and building inspection have been completed, asbestos certified personnel will remove and clean the materials that are stored in the building as described above.

In general, inventory, materials, and supplies that have been bundled and/or wrapped will only be cleaned on the exterior surfaces of the "bundle". Bundled and wrapped lumber and materials will not be dismantled for cleaning individual pieces. Questions concerning this procedure for certain materials on site will be directed to the OSC for clarification.

After the articles have been removed for reuse or disposal, the building will be vacuumed, power washed and cleaned by certified asbestos personnel. Following cleaning, air samples will be collected using aggressive sampling methods and analyzed. In the event that the analysis indicates that more cleaning is required, asbestos certified personnel will re-clean the building. Following re-cleaning, samples will be collected again and sent to the laboratory for analysis. This process will be repeated until the building is certified to be asbestos free. Materials that were previously removed will then be returned to the building.

2.1.8 Task 8 - Old Vermiculite Storage Warehouse Decontamination

The Old Vermiculite Storage Building (Building 2) will be cleaned by URS to remove residual asbestos fibers. The building is approximately 40 feet by 100 feet and is presently used to store fiberglass and wood materials. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and Building Decontamination Plan provided in the attached appendices.

Prior to conducting any work at the site, URS will compile an inventory and appraisal of the quantity and quality of the articles stored in the building. Contents will be identified for either cleaning or disposal. In addition, a building inspection will be conducted to identify the presence of other hazards (e.g., chemical, electrical, mechanical) that may be present in the building. Once the inventory appraisal and building inspection have been completed, asbestos certified personnel will clean and remove the fiberglass and wood materials that are stored in the building as described previously. The salvageable cleaned materials will be removed from the building, placed on pallets (as needed), and transferred to the Sprung structure for interim covered storage.

In general, inventory, materials, and supplies that have been bundled and/or wrapped will only be cleaned on the exterior surfaces of the "bundle". Bundled and wrapped lumber and materials will not be dismantled for cleaning individual pieces. Questions concerning this procedure for certain materials on site will be directed to the OSC for clarification.

After the salvageable materials have been removed, the building will be vacuumed, power washed and cleaned by certified asbestos personnel. Following cleaning, air samples will be collected by aggressive sampling techniques and analyzed. In the event that the analysis indicates that more cleaning is required, asbestos certified personnel will again vacuum, power wash, and clean the building. Following cleaning, samples will be collected again and analyzed. This process will be repeated until the building is certified to be asbestos free. Once the building has been cleaned, the removed materials will be returned to the building.

2.1.9 Task 9 - Large Lumber Warehouse

The Large Lumber Warehouse (Building 3) will be cleaned by URS to remove residual asbestos fibers. The building is approximately 50 feet by 60 feet and is presently used to store lumber. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and Building Decontamination Plan provided in the attached appendices.

Prior to conducting any work at the site, URS will compile an inventory and appraisal of the quantity and quality of the materials stored in the building. In addition, a building inspection will be conducted to identify the presence of other hazards (e.g., chemical, electrical, mechanical) that may be present in the building. Once the inventory and building inspection have been completed, asbestos certified personnel will clean and remove the salvageable wood that is stored in the building as described previously. The salvageable cleaned materials will be removed from the building, placed on pallets (as needed), and transferred to the Sprung Structure for interim covered storage. Non-salvageable material will be transported for disposal.

In general, inventory, materials, and supplies that have been bundled and/or wrapped will only be cleaned on the exterior surfaces of the "bundle". Bundled and wrapped lumber and materials will not be dismantled for cleaning individual pieces. Questions concerning this procedure for certain materials on site will be directed to the OSC for clarification.

After the materials have been removed, the building will be vacuumed, power washed and cleaned by certified asbestos personnel. Full building containment will be required because of the double walled sides and roof filled with vermiculite. Following cleaning, air samples will be collected using aggressive sampling techniques and analyzed. In the event that the analysis indicates that more cleaning is required, asbestos certified personnel will again vacuum, power wash, and clean the building. Following cleaning, samples will be collected again and analyzed. This process will be repeated until the building is certified to be asbestos free. Once the building has been cleaned, the removed materials will be returned to the building.

2.1.10 Task 10 - Operating Planer Shop Decontamination

The Operating Planer Shop Building (Building 4), including the main building, attached planer shed, and related dust collection system, will be cleaned by URS to remove residual asbestos fibers. The building is approximately 70 feet by 80 feet and is presently used for storage and planing operations. URS will coordinate with the equipment owners to ensure that planing operations can be terminated for the duration of the cleaning operations. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and Building Decontamination Plan attached as appendices.

Prior to conducting any work at the site, URS will compile an inventory and an appraisal of the quantity and quality of the materials stored in the building. In addition, a building inspections will be conducted to identify the presence of other hazards (e.g., chemical, electrical, mechanical) that may be present in the building. Once the inventory and building inspections have been completed, asbestos certified personnel will clean and remove the salvageable material that is stored in the building as described previously. The cleaned materials will be removed from the building, placed on pallets (as needed), and transferred to the Sprung Structure for interim covered storage. Non-salvageable material will be removed and disposed.

In general, inventory, materials, and supplies that have been bundled and/or wrapped will only be cleaned on the exterior surfaces of the "bundle". Bundled and wrapped lumber and materials will not be dismantled for cleaning individual pieces. Questions concerning this procedure for certain materials on site will be directed to the OSC for clarification.

Large equipment (the planer) and blower will be locked out/tagged out and cleaned in place. The planer and the shed will be decontaminated. The building, shed and cyclone will be isolated using 2-by-4s and 10-mil plastic sheeting to construct walls. Thus, the cleanliness of this section will be maintained and planer operations can resume if necessary after complete building cleaning, and adjacent soil removal, establishing a clean zone.

After the salvageable materials have been removed and cleaned, and other materials transported for disposal, the building and remaining machinery will be vacuumed, power washed, or hand cleaned by certified asbestos personnel. Full building containment will be required because of the double walls and ceiling filled with vermiculite. Following cleaning, air samples will be collected using aggressive techniques and analyzed. In the event that the analysis indicates that more cleaning is required, asbestos certified personnel will again vacuum,

wash, and clean the building and/or equipment. Following cleaning, samples will be collected again and analyzed. This process will be repeated until the building and contents are certified to be asbestos free. Once the building has been cleaned, a restricted zone, separated from asbestos cleaning activities, will be set up to allow planing operations to be resumed for 8 to 10 days per month. Fencing will be used to designate a clean zone for workers, access, egress, and operation areas.

2.1.11 Task 11 - Small Shed Decontamination

The Small Shed is used by a different tenant than the other buildings. The City of Libby has made arrangements for the shed to be emptied and vacated prior to URS cleaning operations. The building (Building 5) will be cleaned by URS to remove residual asbestos fibers. The building is approximately 36 feet by 50 feet, and it is presently used for miscellaneous storage. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and Building Decontamination Plan.

A building inspection will be conducted to identify the presence of other hazards (e.g., chemical, electrical, mechanical) that may be present in the building. Once the building inspection have been completed, asbestos certified personnel will clean the building.

The building will be vacuumed, power washed and cleaned by certified asbestos personnel. Following cleaning, air samples will be collected using aggressive sampling methods and analyzed. In the event that the analysis indicates that more cleaning is required, asbestos certified personnel will again vacuum, power wash, and clean the building. Following cleaning, samples will be collected again and analyzed. This process will be repeated until the building is certified to be asbestos free.

2.1.12 Task 12 - Demolished Shed Decontamination

If this structure can be located, the concrete foundation from a previous building (Building 6) will be cleaned by URS. It is estimated that the approximate size of the slab is 30 feet by 50 feet. All work at the site will be conducted in accordance with the HSP, Sampling and Analysis Plan, and Building Decontamination Plan.

Following cleaning of the foundation, samples will be collected from the slab and analyzed. In the event that the laboratory analysis indicates that additional cleaning is required, the slab will be re-cleaned. This process will be repeated until the slab has been shown to be

asbestos free. The slab will be left in place pending a decision regarding whether to excavate and dispose of it.

2.1.13 Task 13 – Transportation to and Disposal at Mine Site

Pending an agreement between Grace, the site owner, and the state, all AIM debris and soil will be disposed at the abandoned vermiculite mine on Rainey Creek Road. Transportation will be by tarp covered and lined end dump trucks. Truck traffic will be regulated by the Traffic Foreman and flagging personnel per the Traffic Control Plan. A dozer will be operated at the mine site to spread and compact the debris. The material will be graded to a reasonable smooth surface with minimal grade to minimize erosion. Excavated soil will be placed over the top of the deposited debris as much as possible per the Restoration Plan. Daily cover may be placed over deposited material to prevent wind dispersion. Cover will be obtained from nearby tailings at the mine.

State of Montana Bills of Lading will be prepared by URS for each truckload of waste leaving the Export Plant. Loading of trucks will be done using strict dust control measures. Drivers will be asbestos trained and wear appropriate PPE specified in the HSP during loading and unloading. All trucks will be thoroughly washed and inspected prior to leaving the Export Plant and before leaving the mine disposal site.

This task will be modified and approved by EPA for transportation of waste to Spokane, Washington, if a decision is made not to use the mine site for disposal.

2.1.14 Task 14 - Surface Excavation

In parallel, once sufficient areas are available and not conflicting with the Export Plant cleaning and building decontamination, soil removal will begin. The site will be initially cleared and grubbed of vegetation. Erosion control measures will be implemented to prevent any runoff to surrounding areas, and dust control equipment will be activated so as not to recontaminate cleaned buildings. Six inches of soil will be removed from the designated affected property (approximately 6 acres) as shown on Figure 2-1. Confirmation samples will be collected at specified locations according to the Sampling and Analytical Plan and analyzed using polarized light microscopy (PLM). If AIM is found in some areas, an additional 6 inches of soil will be removed up to a maximum excavation depth of 18 inches. All areas of visible vermiculite will be excavated and removed.

Excavation will be conducted by ripping with a dozer and then using an excavator following the dozer. The excavator will be kept on the unexcavated areas so that cleaned areas are not recontaminated. The material will then be loaded into trucks. The excavation and truck loading operations will be conducted under moist conditions to control dust generation. Water will be applied as necessary. Near building foundations, an excavator, backhoe, and/or hand digging will be employed to remove soil up to the foundations. No soil staging is anticipated.

2.1.15 Task 15 - Backfill and Compaction

Restoration will consist of backfilling across the entire excavated area with a sufficient layer of common fill material to bring the grade to within 6-inches of the original surveyed grade. The final 6-inch layer will be filled with either gravel or top soil as appropriate based on the original surface conditions. Fill and topsoil specifications will be determined once a source is identified and the material specifications will be approved by the EPA. URS estimates that approximately half of the site will be finished with an additional 6-inches of compacted gravel fill suitable for vehicle traffic. Areas that are not be used for roads or parking will be finished to grade with topsoil and hydroseeded. The area will be graded to match pre-excavation grades. Grading will be in accordance with a final grading plan for runoff and erosion control.

2.1.16 Task 16 - Demobilization

Before removing all staff, equipment, and materials brought to Libby to perform the remediation, URS will conduct an exit survey with Grace and the EPA to ensure that all aspects of the specified remediation have been completed. As a result of this survey, a closeout checklist will be developed for immediate action by URS. Following completion of all of the actions on the checklist, URS will demobilize from the site. The Sprung structure and materials within will be left in place.

2.1.17 Task 17 - Final Report

URS will prepare a final report following demobilization from the site. The report will comply with the requirements of Section 300.165 of the National Contingency Plan (NCP) entitled "On-Scene Coordinator (OSC) Reports." The reporting process will take full advantage of the ongoing documentation, filing, and reporting processes conducted during the implementation of the remediation and will include as a basic outline the following:

- A statement by Grace of costs incurred in complying with the UAO;
- A listing of quantities and types of materials removed off site and disposed at the mine or the Spokane, Washington, landfill;

- A listing of materials relocated to the Sprung structure;
- A presentation of the analytical results of all sampling and analyses performed; and
- Accompanying appendices containing all relevant documentation generated during the remediation (e.g., manifests, bills of lading, daily site reports).

The final report will be certified by our URS Project Manager who will supervise and direct the preparation of the report. Following review and comment by Grace, and incorporation of their comments by URS, the report will be submitted to EPA and the MDEQ.

2.2 Air Monitoring Requirements

Air monitoring shall be conducted to determine airborne dust and asbestos fiber levels during the removal actions. Perimeter air monitoring shall be performed by an independent air monitoring firm, KEH. Air monitoring will be performed prior to the initiation of removal actions to determine background levels of dust and fibers in the air using Transmission Electron Microscopy (TEM) ISO 10312. Air monitoring, using Phase Contrast Microscopy (PCM), will be performed during removal actions and demolition activities to ensure that dust and fibers are not being released from the work areas during removal actions, to determine the appropriate level of respiratory protection for removal action workers, and to document dust and fiber levels following the removal actions. Appendix A contains details of the planned sampling and analysis program.

2.2.1 Background Air Samples

The air monitoring consulting firm will collect background air samples at six locations to determine background airborne asbestos fiber levels prior to the start of the removal action. The consulting firm will collect air samples for analysis at identical locations on OU01 on two different days to determine background airborne asbestos fiber levels. The initial background air samples will be compared to the final clearance samples at the completion of the work. It is expected that the asbestos fiber levels at the completion of the removal action will be lower than the asbestos fiber levels present prior to initiating the removal action. Background sample results shall be reported to the EPA during site mobilization.

2.2.2 Ambient Daily Air Monitoring

The air monitoring firm will conduct daily air monitoring during the removal action at OU01 to ensure that airborne dust and fibers are not being released during the removal action. The air monitoring firm will collect daily air samples along the six perimeter locations of OU01 for TEM ISO 10312. PCM samples will be collected in clean rooms, work areas, and at the

exhaust of negative air machines during each active work day. PCM sample results shall be reported to the EPA within 24 hours of collection.

The air monitoring firm will place the six battery powered pumps along fixed locations along the perimeter of OU01. The pumps will provide continuous monitoring of the total mass of airborne particulates on OU01's perimeter. The air monitoring firm will also collect air samples for analyses at these same fixed locations on the perimeter of the project to determine the concentration of airborne asbestos fibers. The air monitoring firm will analyze the data collected from the pumps and the analyses to establish trends between airborne particulate levels and asbestos levels. After review of Grace's initial data submittals, EPA will determine if an adequate correlation exists between particulate measurements and asbestos concentrations. EPA will determine whether total particulate measurements can be substituted for asbestos analysis.

The air monitoring firm will also collect air samples in work areas, clean rooms of decontamination chambers, at the exhaust of negative air machines, and other appropriate areas on OU01. The purpose of these samples is to document that clean rooms are actually clean and that the negative air machines are not exhausting asbestos fibers. For daily ambient samples (PCM) collected pursuant to this section, sample results shall be reported to the EPA within 24 hours of collection, if possible.

2.2.3 Health and Safety Air Samples

The asbestos subcontractor will collect daily personal air samples on its workers to document compliance with OSHA's Asbestos Standard for the Construction Industry.

The asbestos subcontractor will collect time-weighted average (TWA) and excursion samples from ten percent (or a minimum of two) of the workers each day that removal action work is performed. The TWA samples will be started at the beginning of each work day and will be turned off at the conclusion of each work day. TWAs will be adjusted using the Brief and Scala Method for workdays that last longer than eight hours. Thirty-minute excursion samples will be collected from workers during work activities that are expected to generate the highest fiber levels.

The results of the TWA and excursion samples will be compared to the Asbestos in Construction Standard to determine if the level of respiratory protection worn by removal action workers is adequate.

2.2.4 Ambient Final Clearance Air Samples

After each building or structure on OU01 has been decontaminated, and is to be left in place, final clearance samples (TEM ISO 10312) must be collected in accordance with the detailed sampling and analysis plan attached as Appendix A. Sample results shall be reported to EPA upon completion of the decontamination. In a meeting on 28 June 2000, Paul Peronard, the EPA OSC indicated that he would determine the final clearance criteria for each building.

At the conclusion of the removal action for OU01, the air monitoring firm will collect final TEM ISO 10312 perimeter clearance samples. The samples will be collected at the same locations as the background samples collected prior to the initiation of the removal action. Sample results shall be reported to EPA following the removal of all contaminated material from the export site. These sample results will be reviewed by EPA for final clearance.

2.2.5 Soil Excavation Verification Samples

As described in Appendix A, URS will collect surface soil samples following excavation of the property to verify that AIM levels are acceptable prior to backfilling. PLM analyses will be conducted on the soil samples. In a meeting on 28 June 2000, Paul Peronard, the EPA OSC indicated that he would be responsible for reviewing the PLM results and determining acceptable numerical criteria for the soil cleanup.

2.3 Health and Safety Procedures

Appendix B provides a detailed HSP for work at the Export Plant.

2.3.1 Health and Safety Roles and Responsibilities

Roles and Responsibilities for the URS Project CIH, Project Manager (PjM), Construction Supervisor/Site Safety Officer (SSO), Traffic Control Foreman, and site personnel are defined. The Project CIH will be responsible for safety and health oversight and technical support to the project. The Project CIH will prepare or review and approve all work plans and associated health and safety plans. The PjM will oversee project work including asbestos abatement activity. The Construction Supervisor/ SSO will oversee daily field work and implementation of the HSP. The Traffic Control Foreman will be responsible for implementation of the Traffic Control Plan.

2.3.2 Training

Site personnel and truck driver will be trained in accordance with 29 CFR 1910. Only trained and certified asbestos abatement personnel will conduct asbestos abatement work.

2.3.3 Medical Surveillance

Site personnel will receive medical evaluations in accordance with 29 CFR 1910. Respirator fit tests will be administered to personnel engaged in removal activities.

2.3.4 Hazard Assessment

Hazard assessment at the Libby Site will consist of the identification and assessment of two basic categories of hazard; chemical and physical as noted below.

2.3.4.1 Chemical Hazards

Air samples at the Export Plant have shown up to 0.0013 f/cc asbestos. Soil samples at the Export Plant have shown up to 10% by weight asbestos. The plan will address site control/containment, personal protective equipment (PPE), air monitoring, decontamination, and emergency response for asbestos abatement.

2.3.4.2 Physical Hazards

The HSP contains General Safe Work Practices to address physical hazards. Activity Hazard Analyses (AHAs) have been prepared for each of the anticipated work tasks which describe the task, associated hazards, and controls. The AHA will be supplemented by Task Hazard Analysis Cards for short-term non-routine work. Safety hazards will be addressed by URS standard operating procedures contained in our Safety Management Standards (SMS). Relevant SMSs are expected to include:

- SMS 4 - Accessing Industrial Sites;
- SMS 7 - Aerial Lifts;
- SMS 45 - Back Injury Prevention;
- SMS 38 - Cranes;
- SMS 12 - Electrical Safety;
- SMS 40 - Fall Protection;
- SMS 14 - Fire Prevention;
- SMS 16 - Hand Tools and Portable Equipment;
- SMS 2 - Hazard Communication;
- SMS 17 - Hazardous Waste Operations;
- SMS 18 - Heat Stress;
- SMS 19 - Heavy Equipment Operation;
- SMS 20 - Hot Work;
- SMS 21 - Housekeeping;
- SMS 23 - Lockout/Tagout;
- SMS 26 - Noise and Hearing Conservation;
- SMS 28 - Portable Ladders;

- SMS 41 – Rigging;
- SMS 30 – Sanitation;
- SMS 43 – Utility Clearance and Isolation; and
- SMS 32 – Work Zone Traffic Control.

2.3.5 Personal Protective Equipment

PPE for asbestos abatement are addressed in the subcontractor's asbestos abatement plan. Level B or C PPE is anticipated, depending upon air sampling results. PPE for other removal activities is described in the HSP. Intrusive activity excavation will be in Level C. All personnel involved with building, cleaning or intrusive activities such as excavation will be required to work in Level C PPE at a minimum. PPE programmatic requirements are addressed in SMS 29 on Personal Protective Equipment and SMS 42 on Respiratory Protection.

2.3.6 Air Monitoring

The HSP contains an Air Monitoring Plan which will address asbestos and total dust sampling requirements during removal actions. Air monitoring will be conducted per SMS 43. Asbestos air monitoring during removal actions will be conducted in accordance with ARM 17.74. Air monitoring will include background air sampling prior to the start of work, personal breathing zone air samples, area monitoring during removal activities, and final clearance sampling following removal.

Direct reading total dust monitors will also be employed to evaluate airborne dust levels in the removal and waste disposal areas and downwind at the areas' exclusion zone boundary. This monitoring is intended to evaluate the effectiveness of dust control measures. Total dust Action Levels for additional dust suppression or suspension of site activities will be in the HSP.

2.3.7 Site Control

The Export Plant activity area will be fenced and asbestos warning signs posted during removal activities. The mine disposal site activity areas will be fenced similarly and signed. Hazardous waste site work zones, including an Exclusion Zone and Contamination Reduction Zone, will be designated using flagging. The Support Zone will be outside the fenceline. The HSP contains procedures for controlling access to the Export Plant and mine disposal site. Policy will be to require HAZWOP and asbestos training and medical surveillance and respirator fit test documentation unless approved in writing by the SSO and Project CIH. All site personnel will comply with PPE requirements established in the HSP, which, at a minimum, will include hardhat, steel-toed boots, safety glasses, and traffic safety vests around mobile equipment. All personnel will receive an initial site safety orientation from the SSO. Visitors will be

accompanied at all times by the SSO or other Contractor personnel designated by the SSO. The SSO has authority to remove any personnel from the work area for non-compliance with safety and health requirements.

2.3.8 Decontamination

A negative-pressure decontamination trailer will be provided for personnel decontamination. The trailer will contain a clean area, showers, and dirty area separated by air locks. All personnel performing abatement activities will be required to shower before leaving the site. Heavy equipment will be decontaminated on a pad using high-pressure washers. A tire wash will be provided for haul trucks. Wastewater will be collected and filtered before discharge.

2.3.9 Emergency Response

The HSP contains a section covering emergency response to medical, fire, and hazardous substance release addressing protection of workers, emergency responders, and the public. The HSP will identify local emergency response resources and contacts. Prior to the start of work the SSO and Project CIH will contact local emergency response agencies and discuss site work and potential emergency scenarios. Site emergencies will be reported according to SMS 49. Hazardous substance releases will be verbally reported to EPA's OSC and the National Response Center immediately followed by a written report with three days.

2.3.10 Project Documentation

The Project Health and Safety Manual contains required safety and health documentation. The seven day progress report will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work. The Final Report will include a summary of safety and health items from the Progress Reports.

2.4 Document Control

In response to EPA's UAO, Grace will perform or have performed the following project and document control activities associated with their cleanup at the Libby site.

2.4.1 Work Plan

Five business days after the effective date of the UAO, Grace submitted to EPA for approval a draft Work Plan for performing the removal action set forth above. The draft Work Plan was reviewed and comments received on June 16, 2000. This "revised" draft Work Plan addresses the comments received.

The EPA, in consultation with the state, may approve, disapprove, require revisions to, or modify the Work Plan. Grace shall implement the Work Plan as finally approved in writing by EPA in accordance with the Export Plant Schedule of Work. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be fully enforceable under the UAO. Grace shall notify the EPA and the state at least 48 hours prior to performing any Export Plant Work pursuant to the EPA-approved Work Plan. Grace shall not commence or undertake any removal actions at the Export Plant without prior EPA approval. If Grace's revisions of the draft Work Plan do not meet the EPA's approval, the EPA may, in consultation with the state, unilaterally modify the Work Plan for approval.

2.4.2 Sampling and Analysis Plan – Appendix A

As discussed earlier in Section 2.1 of this draft Work Plan, Grace has prepared and submitted for EPA and state a review and comment a Sampling and Analysis Plan (SAP) **Appendix A**. The SAP will ensure that all sampling and analyses performed pursuant to the EPA's UAO shall conform to the EPA's direction, approval and guidance regarding sampling, QA/QC, data validation, and chain of custody procedures. Grace shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance. Grace shall follow the following documents, as appropriate, as guidance for QA/QC and sampling: Quality Assurance/Quality Control Guidance for Removal Activities; Sampling QA/QC Plan and Data Validation Procedures, Office of Solid Waste and Emergency Response (OSWER) Directive Number 9360.4-01; and Environmental Response Team Standard Operating Procedures, OSWER Directive Numbers 9360.4-02 through 9360.4-08.

Upon request by the EPA, Grace shall have its laboratory(ies) analyze samples submitted by the EPA for quality-assurance monitoring. Grace shall provide to the EPA and the state the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

Grace shall provide to the EPA and the state, or their authorized representatives, split and/or duplicate samples of any samples collected by Grace while performing actions under the UAO. Grace shall notify the EPA and the state not less than two days in advance of any sample collection activity. The EPA and the state shall have the right to take any additional samples that they deem necessary.

2.4.3 Health and Safety Plan – Appendix B

As discussed earlier in Section 2.3 of this draft work Plan, Grace has prepared for EPA and state review and comment a plan that ensures the protection of the public health and safety, including that of its on-site workers, during performance of Export Plant work under the UAO. This plan was prepared in accordance with EPA's standard Operating Safety Guide (November 1984, updated July 1988). In addition, the plan complies with all current applicable OSHA regulations: Hazardous Waste Operations and Emergency Response found at 29 CFR Part 1910. Grace shall incorporate all changes to the plan recommended by the EPA and implement the plan during the pendency of the removal action.

2.4.4 Project Execution Plans – Appendices C through J

The plans in Appendices C-J are incorporated into the overall final Work Plan required for this removal action.

- Appendix C - Building Decontamination Feasibility Plan;
- Appendix D - Building Abatement/Decontamination Plan;
- Appendix E - Traffic Control Plan;
- Appendix F - Dust Control Plan;
- Appendix G - Erosion Control Plan;
- Appendix H - Document Control Plan;
- Appendix I - Appraisal and Property Valuation Plan; and
- Appendix J - Restoration Plan.

2.4.5 Weekly Reporting

Grace shall submit a written progress report to the EPA and to the state concerning actions undertaken pursuant to the UAO every seventh day after the date of receipt of the EPA's approval of the Work Plan until termination of the UAO, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered; analytical data received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

2.4.6 Conveyance of Real Property

Grace shall, at least 30 days prior to the conveyance of any interest in real property at the Export Plant, give written notice of the UAO to the transferee and written notice to the EPA and the state of the proposed conveyance, including the name and address of the transferee. The party conveying such an interest shall require that the transferee comply with Section VI, Paragraph 4 of the UAO - Access to Property and Information.

2.4.7 Final Report

Within fifteen days after completion of all removal actions required under the UAO, Grace shall submit for the EPA review and approval a final report summarizing the actions taken to comply with the UAO. This report shall also be sent to the state. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled OSC Reports and with OSWER Directive No. 9360.3-03 - Removal Response Reporting. The final report shall include a good faith estimate of total costs or statement of actual costs incurred in complying with the UAO; a listing of quantities and types of materials removed; a discussion of removal and disposal options considered for those materials; a listing of the ultimate destinations of those materials; a presentation of the analytical results of all sampling and analyses performed; and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by the person who supervised or directed the preparation of that report.

Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

2.4.8 Access to Information

Grace shall provide access to all records and documentation relative to the conditions at the Export Plant and the action conducted pursuant to the UAO. Such access shall be provided to EPA employees, contractors, agents, consultants, designees, representatives and state of Montana representatives. Grace shall submit to EPA and the state the results of all sampling or tests and all other data generated by Grace or its contractor(s), or on Grace's behalf during implementation of the UAO. Such sampling results shall be submitted to EPA and the state within two days of receipt by Grace.

2.4.9 Documentation of Off-Site Shipments

All hazardous substances, pollutants or contaminants removed off-site pursuant to the UAO for treatment, storage, or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with 42 United States Code (USC) §9621(d)(3) and the EPA Revised Procedures for Implementing Off-Site Plant Response Actions (40 CFR 300.440), November 13, 1987. Regional offices will provide information on the acceptability of a facility under Section 121(d)(3) of CERCLA and the above regulation. Prior notification of out-of-state waste shipments should be given consistent with OSWER Directive 9330.2-07.

2.4.10 Documentation of Compliance with Other Laws

Grace shall perform all actions required pursuant to the UAO in accordance with all applicable local, state and federal laws and regulations except as provided in CERCLA Section 121(e) and 40 C.F.R. Section 300.415(i). In accordance with 40 CFR §300.415(i) all on-site actions required pursuant to the UAO shall, to the extent practicable, as determined by EPA, considering the exigency of the situation, attain ARARs under federal environmental, state environmental, or facility siting laws. Grace shall perform the work in accordance with the ARARs identified in the Action Memorandum attached to the UAO.

2.4.11 Documentation of Emergency Response Actions and Notification of Releases

If any incident, or change in Export Plant conditions, during the actions conducted pursuant to the UAO, causes or threatens to cause an additional release of hazardous substances from the Export Plant or an endangerment to the public health, welfare, or the environment, Grace shall immediately take all appropriate action. Grace shall take these actions in accordance with all applicable provisions of the UAO, including, but not limited to the HSP, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Grace shall also immediately notify the OSC or, in the event of his unavailability, shall notify Steve Hawthorn at 303-312-6061 of the incident or of the Export Plant conditions.

Additionally, in the event of any release of a hazardous substance, Grace shall immediately notify the EPA's OSC and the National Response Center at 800-424-8802, as well as the state. Grace shall submit a written report to the EPA and to the state within three days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release, and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, not in lieu of,

reporting under CERCLA Section 103(c) and Section 304 or the Emergency Planning and Community Right-To-Know Act of 1986, 42 USC Sections 11001 *et seq.*

2.4.12 Modifications

Modifications to any plan or schedule may be made in writing by the OSC or at the OSC's oral direction. If the OSC makes an oral modification, it will be memorialized in writing within five days; provided, however, that the effective date of the modification shall be the date of the OSC's oral direction. The rest of the UAO, or any other portion of the UAO may only be modified in writing by signature of the Assistant Regional Administrator, Region 8 Office of Ecosystem Protection and Remediation.

If Grace seeks permission to deviate from any approved plan or schedule, Grace's Project Coordinator shall submit a written request to the EPA and to the state for approval outlining the proposed modification and its basis.

2.4.13 Additional Removals Action Work Plan

If the EPA, in consultation with the state, determines that additional removal actions at the Export Plant not included in an approved plan are necessary to protect public health, welfare, or the environment, the EPA will notify Grace of that determination. Unless otherwise stated by the EPA, within ten days of receipt of notice from EPA that additional removal actions are necessary to protect public health, welfare, or the environment, Grace shall submit for approval by the EPA a Work Plan for the additional removal actions. Such Work Plan shall also be provided to the state. The plan shall conform to the applicable requirements of the UAO. Upon the EPA's approval of the plan pursuant to Section VI of the UAO, Grace shall implement the plan for additional removal actions in accordance with the provisions and schedule contained therein.

2.4.14 Record Retention, Documentation, Availability of Information

Grace shall preserve all documents and information relating to work performed under the UAO, or relating to the hazardous substances found on or released from the Export Plant, for ten years following completion of the removal actions required by the UAO. At the end of this ten-year period and 30 days before any document or information is destroyed, Grace shall notify the EPA and the state that such documents and information are available to the EPA and to the state for inspection, and upon request, shall provide the originals or copies of such documents and information to the EPA. In addition, Grace shall provide documents and information retained

under this section at any time before expiration of the ten-year period at the written request of EPA.

Grace shall maintain a running log of privileged documents on a document-by-document basis, containing the date, author(s), addressee(s), subject, the privilege or grounds claimed (e.g., attorney work product, attorney-client), and the factual basis for assertion of the privilege. Grace shall keep the "privilege log" on file and available for inspection. The EPA may, at any time, challenge claims of privilege through negotiations or otherwise as provided by law or the Federal Rules of Civil Procedure.

3.0 Project Organizational Chart

URS has developed a project organization that will provide Grace and our staff with clear lines of communication and a solid organization structure. **Figure 3-1** shows the proposed organization chart for the project. The following paragraphs provide brief descriptions of key staff roles and responsibilities, along with summaries of past work experience.

Paul Peronard – EPA On-Site Coordinator.

John Constans – Montana Department of Environmental Quality.

Jim Stout, Project Manager, will be responsible for managing the project on a daily basis and will be the single point of contact for Grace. His tasks will include the management of all design, construction, and abatement activities, providing leadership and guidance to staff, communicating with Grace on project status, and overseeing scheduling and cost control activities.

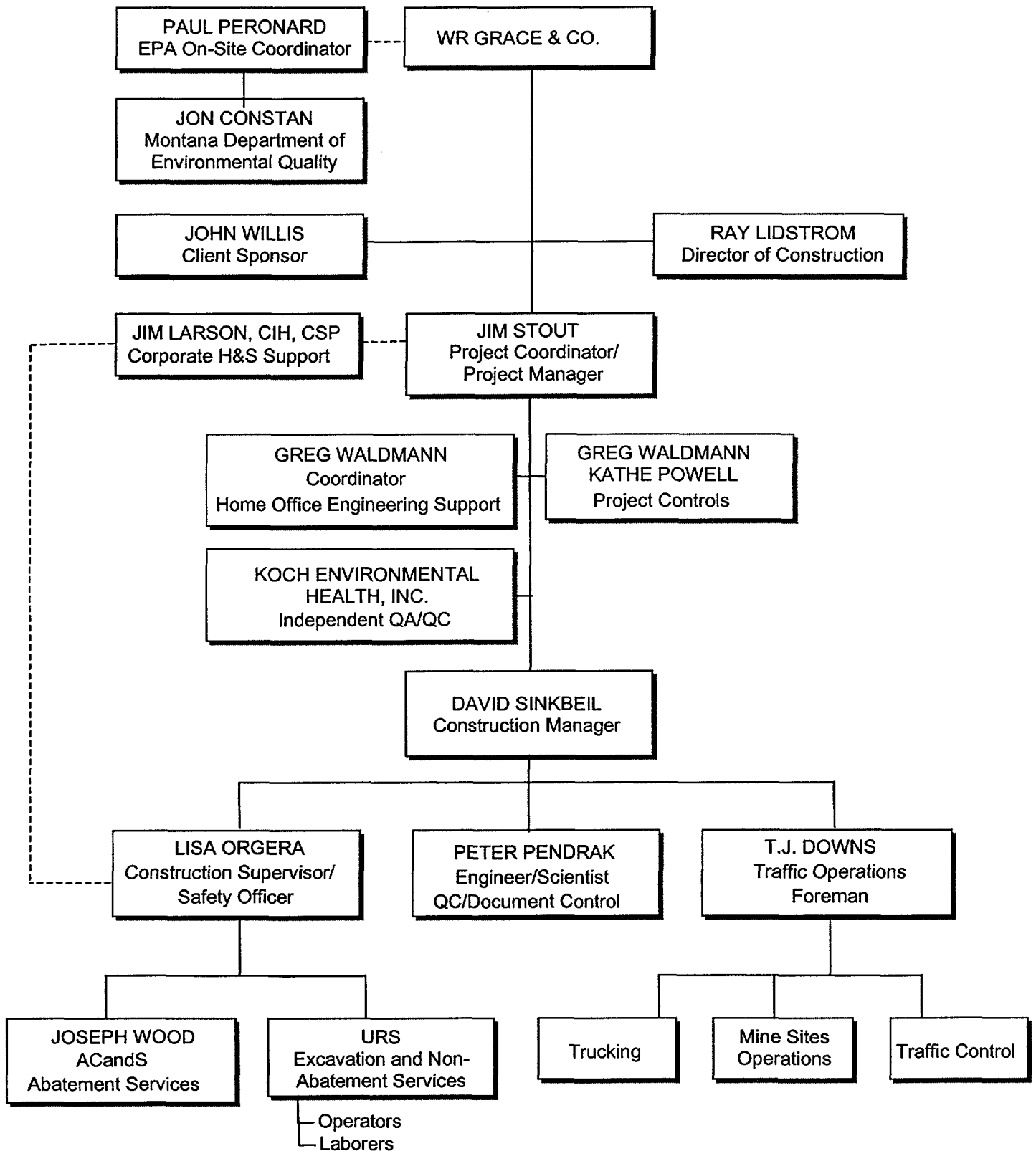
Mr. Stout has over 15 years of experience in industrial hygiene and environmental health. Currently, he is Project Manager for the DPR/Intel building in Colorado Springs. He has conducted hazardous surveys, produced the bid documents and specifications, written the project design, and is overseeing abatement and air monitoring at the Intel building.

Mr. Stout has managed a number of asbestos assessment surveys, generated reports, developed operation and maintenance plans, and has overseen project air monitoring and on-site analyses. His work has spanned a number of sites including, but not limited to, F.E. Warren Air Force Base; several power plants in Colorado, Michigan, and Ohio for the Public Service Company of Colorado; Lockheed Martin; Sioux Falls Public Schools; and Ohio University. Mr. Stout has also directed the asbestos removal efforts for the Cinderella City, Denver project, and has conducted several asbestos surveys at sites on the Army Depot in Pueblo, Colorado.

Mr. Stout is certified in Sampling and Evaluating Airborne Asbestos, Dust – NIOSH 582. He is also an Asbestos Trainer certified by the State of Colorado.

Mr. John Willis, Client Sponsor, is URS's Grace client sponsor and will act as liaison to keep Grace's senior management apprised of the overall status of the project. Using copies of the weekly reports, Mr. Willis will review the progress of the project, discuss status and issues

Figure 3-1. Organizational Chart



resolution with Ray Lidstrom and Jim Stout, and then update the status to Grace's senior management.

Mr. Ray Lidstrom, Director of Construction, will provide overall construction oversight and expertise to the project. He will consult with Jim Stout and John Willis as needed. He will focus the project team on achieving a quality closure while optimizing personnel and environmental safety, cost efficiency, and milestone compliance. Mr. Lidstrom has 38 years of direct construction and related operations experience. His responsibilities have included direct performance and staff oversight for remedial investigations, services, construction projects, and treatment plant operations. His broad experience includes administration, engineering management, and direct supervision of Remedial Investigation/Feasibility Study (RI/FS) design, remedial implementation, construction, and facility operations for a broad range of industrial and United States Army Corps of Engineers (USACE) applications. Mr. Lidstrom has had training and experience in union-management negotiations, professional project scheduling, and management. Additionally, he is both trained and experienced in emergency response, hazardous material categorization, and hazardous material transportation.

Mr. Jim Larson, Corporate Health and Safety Support, will be responsible for ensuring that corporate health and safety procedures are developed and followed on this project. Mr. Larson will coordinate with the on-site Health and Safety Officer, Lisa Orgera, to ensure that the appropriate health and safety procedures are followed.

Mr. Larson is both a Certified Industrial Hygienist and a Certified Safety Professional. He has over 20 years of experience in industrial hygiene, occupational safety, and environmental health. His consulting experience ranges from field work to managing of projects for industrial clients, hazardous waste operations, construction projects, and Department of Defense and Department of Energy facilities. As a Regional Health and Safety Manager, Mr. Larson oversees the implementation of health and safety program for Western Region offices and field projects. He develops safety and health programs, provides training, develops and reviews safety and health plans for hazardous waste and construction operations, conducts internal health and safety evaluations of offices and projects, and performs incident investigations.

Mr. Gregory Waldmann, Project Controls, will be responsible for monitoring cost control on this project. His experience in project management, environmental compliance audits, and natural resource management (including survey crew and subcontractor management) provides him with a varied background for project controls.

Mr. Waldmann is certified by the Ecological Society of America as an Associate Ecologist, listed with the EPA Region Radon Proficiency Program and the Colorado Asbestos Building Inspector Program.

Ms. Kathe Powell, Project Controls and Buyer, will be responsible for coordinating purchasing equipment and supplies, setting up subcontract agreements, tracking project expenses, and generating project budget summaries. Ms. Powell will report directly to the Project Manager. She has significant experience in assisting project managers with tracking costs on projects, invoice review and reconciliation, project set-up, subcontracts, cost corrections, project closure, project-related purchasing issues (commercial and government projects), negotiation, and cost analysis.

Mr. Dave Sinkbeil, Construction Manager, has 12 years of experience managing Superfund remediation and construction projects related to historic copper mining operations. He also has 10 years of experience performing various mine planning activities and Professional Engineer certifications of design/construction projects at surface coal mines. Mr. Sinkbeil is a certified Professional Engineer in the State of Montana (#13702PE).

Mr. Sinkbeil has supervised a \$2.5 million remediation of 50,000 cubic yards of arsenic-contaminated soil using pug-mill. In this capacity, he directed the subcontractor performing quality assurance/quality control testing of the treatment process and preparation of as-built drawings. He performed construction contract administration including documenting and reporting progress, negotiating design changes and change orders, processing pay requests, and performing claims management and contract close-out.

Lisa Orgera, Construction Supervisor/Safety Officer, will be responsible for managing daily field activities for all URS personnel and subcontractors. Ms. Orgera will report directly to the Project Manager and will work closely with him on scheduling, planning, and conducting and tracking the field work. Ms. Orgera will also be responsible for site Health and Safety, coordinating with the Corporate Health and Safety, to assure that all work is conducted in a safe manner.

Ms. Orgera was recently responsible for all field operations for the Rocky Mountain Arsenal Remediation and Demolition project. She worked directly with the project manager and site engineers on scheduling, waste delivery, and remediation tasks. This project is the only site

ever awarded the OSHA VPP Star Status. Ms. Orgera managed up to 4 foremen and 15 laborers for this project. She has served as Senior Lead Foreman responsible for asbestos crew supervision for Bechtel Control Asbestos Management, where her duties included daily labor tasking, production tracking, and cost-to-complete estimating.

Mr. Peter Pendrak, URS QC/Document Control, is a Staff Hydrologist at the URS/Dames & Moore Denver office. His work experience over the past five years at Dames & Moore includes a broad array of water resources projects. He has participated in several major surface water remedial investigations at mining and petroleum refinery sites under both the CERCLA and RCRA processes. For each of these projects, Mr. Pendrak has assisted in developing water quality monitoring networks, quality assurance/quality control programs, and implementation of water quality and hydrologic data collection programs to assess the extent and degree of water resource impacts. Monitoring networks often included automated collection of meteorologic data to assist in collection of real time water quality data.

Mr. Pendrak has served as a contributing hydrologist for several EIS and EA studies following NEPA guidelines for projects including oil and gas development. He performed extensive data evaluation including quality assurance/quality control, and development of detailed reports subject to regulatory review.

Mr. T. J. Downs, Traffic Operations Foreman, is experienced in managing and supervising underground and overhead power distribution activities, crew supervision, and construction management. He has successfully managed several projects with aspects including building construction, site improvements, road and parking area construction, and under and aboveground fuel storage systems removal and replacement.

Mr. Downs is certified and/or trained in the following: 40 Hour Hazardous Waste Operation/Emergency Response (29 CFR – 1910.120); Construction Quality Management for Contractors, U.S. Army Corps of Engineers; and he is qualified and trained for hazardous waste and asbestos site work.

Mr. Joseph Wood, ACandS Project Manager, has 27 years of construction experience, 11 of which is in environmental remediation. He has been a project manager, operations manager, and construction manager. His certifications and industry training include asbestos contractor/supervisor, NIOSA 582 training, hazardous waste operations training and scaffold building.

4.0 Implementation Schedule

Figure 4-1 is the proposed schedule for removal and abatement activities described in this Work Plan, excluding weather delays and contingencies for unknowns that may be encountered that encumber activities or demolition requirements. The individual tasks shown on the schedule correspond to the Work Breakdown Structure (WBS) discussed in Section 2.

To complete removal actions through backfill and grading the project, with weather contingency allowances, will take approximately five months (20 weeks) from the date of EPA approval. This 20-week schedule is consistent with the EPA's Attachment 2 "Export Plant Schedule of Work" for the duration.

The project consists of three basic groups of activities, including: (1) Project Start-up, 2) Remedial Activities and 3) Project Closeout.

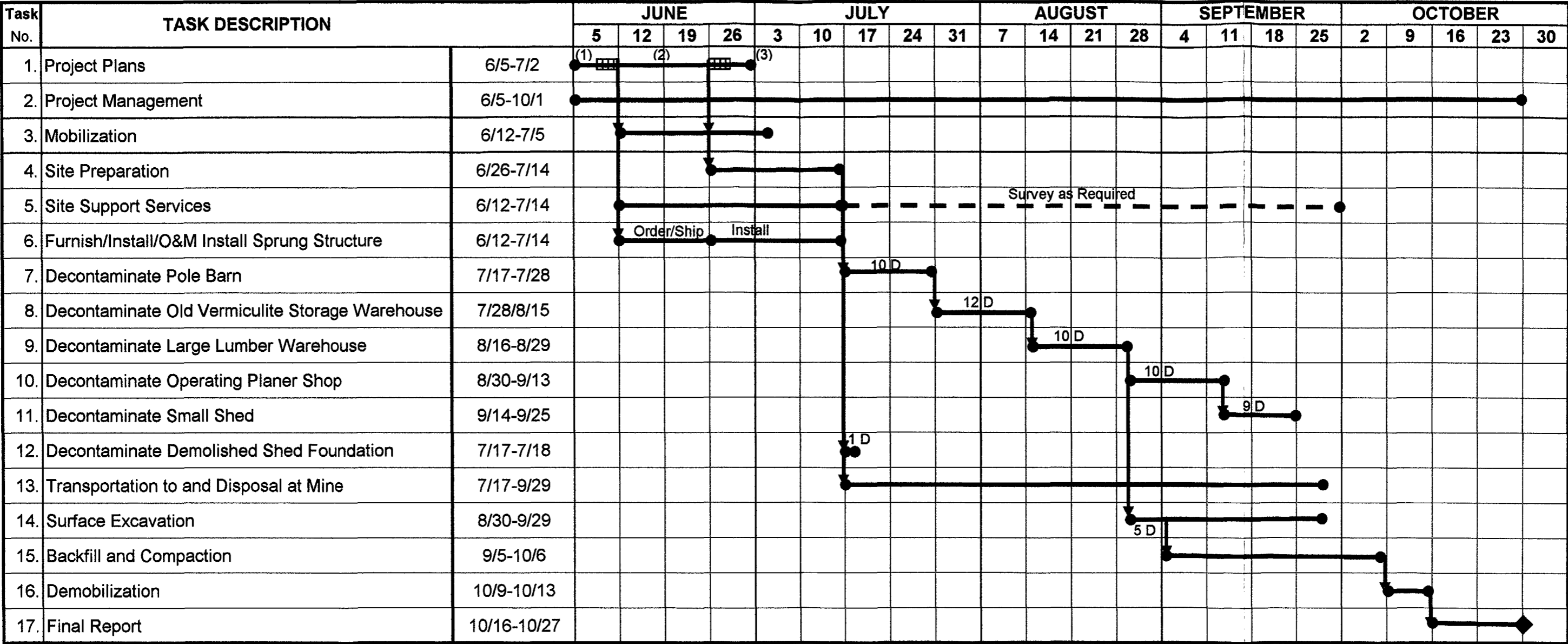
Project Start-up. This work includes preparation of project plans, engineering and procurement activities, mobilization to the site, and preparation of the site for remedial activities. These activities will commence in early June and continue until mid-July (6 weeks).

Remedial Activities. This work includes abatement and decontamination activities for five buildings (pole barn, old vermiculite storage warehouse, large lumber warehouse, operating planer shop, and small shed), and the foundation of a previously demolished shed. This work also includes the removal of contaminated soil and transportation and disposal of all waste materials to the mine site. The site will be backfilled and compacted upon removal of contaminated soils. Remedial activities are scheduled to commence on 17 July and will continue for 12 weeks to completion on 7 October.

Project Closeout. This work will include a short demobilization period in early October, with site closure on approximately 16 October. A draft and final report summarizing field activities and results will be prepared over a two-week period commencing on 16 October with completion by 27 October.

Implementation Schedule for Removal and Abatement Activities

The actual full time allocation required is 20 weeks from the date of approval of Work Plan through completion of site backfill/grading. The overall 20 weeks of removal action requirements allows for potential weather delays and other unknowns for which no float time has been included in this schedule.



●—●

Full Time Activity

|||||

EPA Activity

- (1) Delivery of Draft Plan
- (2) Delivery of Prefinal Supplemental Plans
- (3) Approval of Work Plan by EPA initiating start of restoration

Figure 4-1

APPENDIX A
SAMPLING AND ANALYSIS PLAN
EXPORT SITE, LIBBY, MT

1.0 Introduction

The following describes the proposed air monitoring/industrial hygiene strategies to be provided by Koch Environmental Health, Inc. (KEH) for URS in support of asbestos abatement and remedial efforts at the Export Plant Site in Libby, MT. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of the project. This plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated through URS or a designated representative, will be implemented only after approval by URS and the EPA. KEH will support URS in achieving the objective of the project in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements for asbestos control. This plan will apply to asbestos cleanup/decontamination in all work areas at the Export Plant site, although changes or alterations may be made in some work areas as conditions deem them necessary. Target work areas will include the following:

- Pole Barn;
- Old Vermiculite Storage Warehouse;
- Large Lumber Warehouse;
- Planer Shop (operating);
- Small Shed;
- Demo'd Shed;
- Surface Excavation, general; and
- Sprung Building (if necessary).

All work will be conducted under the direct supervision of a staff Certified Industrial Hygienist (CIH) in accordance with applicable project and regulatory requirements with regards to asbestos control. KEH Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of each project. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA (AHERA) and the State of Montana with respect to Asbestos Professionals.

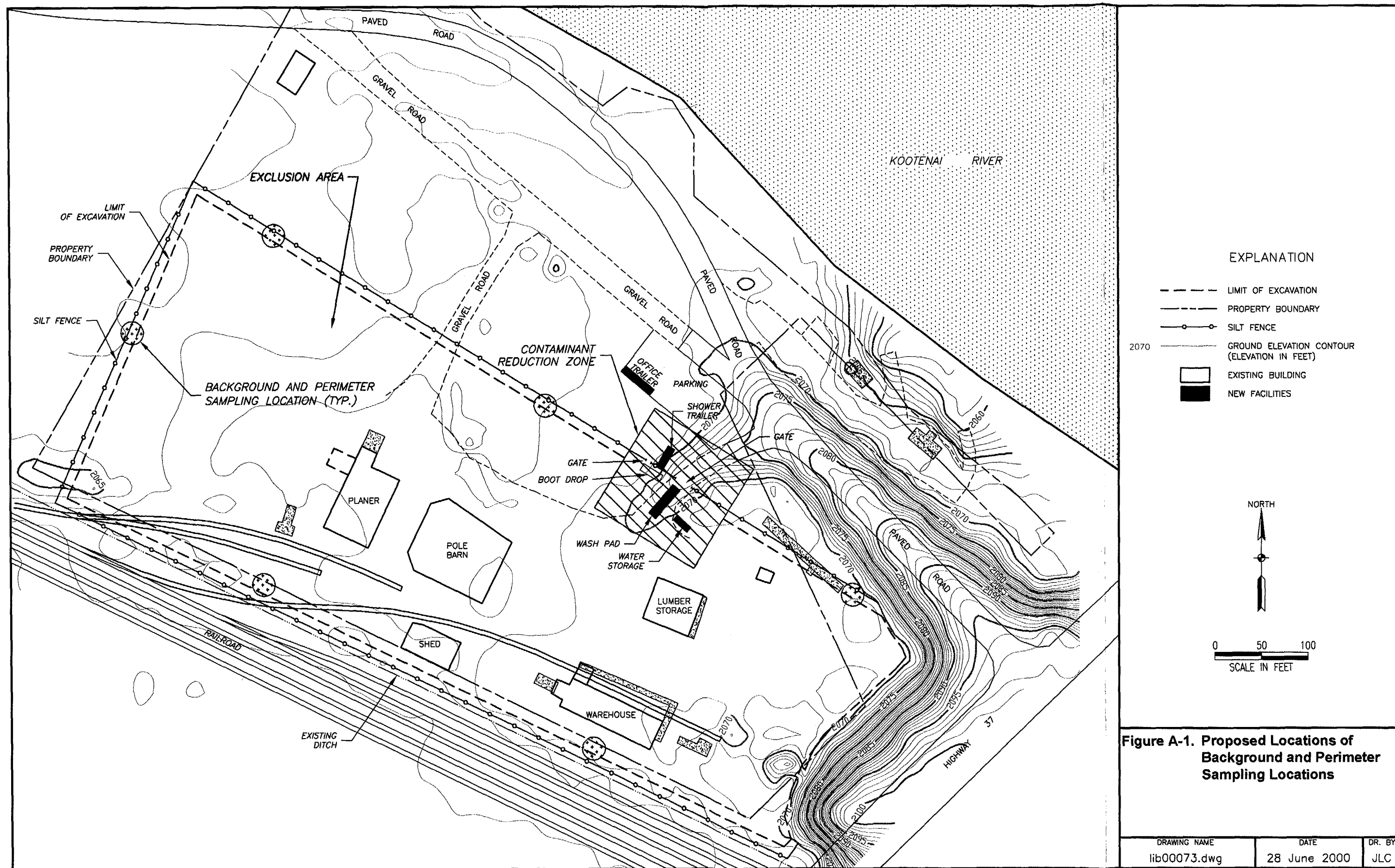
2.0 Air Monitoring and Sampling Plan

All air monitoring and sampling for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Project Manager will coordinate all sampling activities with the designated URS Representative to ensure that all affected abatement areas are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with EPA and State of Montana requirements regarding asbestos control. The air sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) ISO 10312 methodologies in multiple areas.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each work area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rules. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each work area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they related to asbestos remediation.

Transmission Electron Microscopy (TEM) ISO 10312 analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM ISO 10312 sampling will be used for asbestos determination in airborne samples as necessary and will be used for background, perimeter, and clearance sampling in all work areas as required. In some cases, both PCM and TEM ISO 10312 samples may be collected simultaneously (i.e. side-by-side) for use in determining effective fiber control strategies.

Background perimeter air samples will be collected for TEM ISO 10312 analysis prior to intrusive work to determine ambient airborne contaminant levels. Perimeter air samples will be collected on two separate days prior to intrusive work at the site at six locations. Perimeter samples will be collected during each day of asbestos abatement operations at the same locations as background samples. Figure B-1 shows proposed locations for background and perimeter sampling. A fixed final location will be field established away from obstructions and documented. Final visual inspections and clearance air monitoring via TEM ISO 10312 will be conducted in each work area upon completion of asbestos abatement and final cleaning procedures. Analysis of all samples collected will be submitted to the designated URS on-site



laboratory or shipped off site (RJ Lee) for analysis according to appropriate turnaround times for each type of analysis.

2.1 Sample Collection

Phase Contrast Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm². Transmission Electron Microscopy (TEM) ISO 10312 samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm². All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos abatement is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g. PCM, TEM) of samples collected in and around each work area. Any changes to sampling strategies will be coordinated through the designated URS representative and will only be implemented to add value to the generation of data and add efficiency to the air monitoring program.

Air samples will be collected at flow rates between 2.0 and 10.0 liters per minute (L/m) for PCM and TEM ISO 10312 sampling. KEH Representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument on-site at all times during this project and will maintain calibration records on site for review by the URS representative.

Portions of samples not destroyed during analysis will be archived.

2.2 Laboratory Analysis

To ensure state-of-the-art quality control, all analysis will be conducted by independent laboratories provided by URS that are accredited by the American Industrial Hygiene Association (AIHA) and/or the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of PCM and TEM air samples. Selected samples will be analyzed on-site by an independent laboratory to ensure rapid transmission of data and assist in developing dynamic asbestos control strategies. Results of all air samples will be posted in or around the affected work area within 24 hours for (PCM) or upon laboratory forwarding of analysis for TEM ISO 10312.

2.3 Clearance Sampling

Clearance samples will be collected after an acceptable status visual inspection has been performed by a qualified Industrial Hygienist (IH) in each applicable work area. Clearance samples will be collected for TEM ISO 10312 analysis in accordance with project work requirements. The numbers and locations of clearance samples will be dependent upon the size and configuration of the work area. All clearance samples will be collected in an aggressive manner utilizing at a minimum a 1 horsepower leaf blower and additional support via area box fans dependent upon the size of each work area. Results of all final clearance samples will be reported immediately upon completion of analysis to the designated URS representative and will be posted for review in accordance with project requirements.

2.4 CIH Review and Sign-Off

Upon completion of each project, a final technical report will be generated by KEH that describes the project activities, air sample results, and visual inspection data. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our clients are provided reliable technical data. All projects conducted by KEH for URS will be performed under the supervision of a staff Certified Industrial Hygienist. All technical reports for this projects will be developed, reviewed, and signed by a staff Certified Industrial Hygienist at no additional cost to the customer.

2.5 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. Our inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support equipment, including calibrated rotameters, primary flow standards, a variety of 1 HP leaf blowers, stationary box fans, and associated electrical and personal protective equipment. All of our rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e. battery) pumps will be maintained on site to support air monitoring requirements for the project.

KEH utilizes Thomas brand electric high-volume sampling pumps capable of running at 1-15 liters per minute continuously for multiple shifts. KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pump and battery packs will be maintained on site

to adequately monitor the project on a daily basis and allow for charge-discharge cycles, pump failures, and backup capabilities. Our inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling a variety of contaminants. Our excellent working relationships with nationwide safety suppliers and laboratories enable us to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

3.0 Soil Confirmation Sampling

Following surface soil excavation activities KEH will collect samples of surface soil to verify that excavated areas are free from asbestos. URS anticipates excavating approximately 5 to 6 acres of soil to a depth of 6 inches. Areas identified as containing vermiculite at greater depths will be excavated until the material is no longer visible.

The excavated areas will be divided into 100 ft. x 100 ft. grids. Five composite verification samples will be collected from the excavated surface within each of these grids. To determine the location to collect the samples, each individual 100 ft. x 100 ft. grid will be subdivided into 20 ft. x 20 ft. subgrids (25 subgrids per grid). Each of the composite samples will consist of a soil aliquet from five adjacent subgrids. Samples of surface soil will be collected at the approximate center-point of each subgrid. Approximately twenty-two 100 ft. x 100 ft. grids will be laid out over the export plant area. With five verification samples collected per grid, a total of 110 soil samples will be collected.

Soil verification samples will be analyzed using the PLM technique. If the soil within a grid is found to exceed cleanup criteria, an additional 6-inches of soil will be removed from the respective 100 ft. x 100 ft. grid. URS is currently aware of two areas where vermiculite extends to depths to at least 18 inches. These areas will be excavated until vermiculite is no longer visible and verification samples will be collected at a rate of one sample per 400 square feet.

APPENDIX B
HEALTH AND SAFETY PLAN

URS RADIAN HEALTH AND SAFETY PLAN

SIGNATURE PAGE

Project Name: Removal and/or Abatement of Asbestos and Vermiculite

Location: Libby Asbestos Site Export Plant, Montana

Project Number: 805169

Client: WR Grace & Co.

REVIEWED AND APPROVED BY:

Signature: _____

Jim Larson, CIH, CSP
Project CIH,
Regional Health and Safety Manager

Date Approved: _____

Signature: _____

Jim Stout, Project Manager

Date Approved: _____

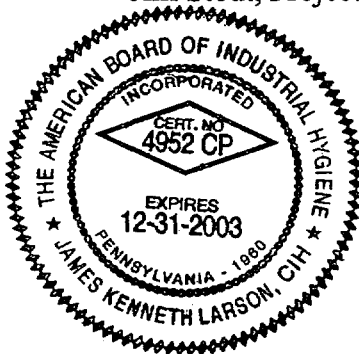


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Attachments

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List of Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
APR	Air-purifying respirator
CDL	Commercial driver's license
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfm	cubic feet per minute
CFR	<i>Code of Federal Regulations</i>
CIH	Certified Industrial Hygienist
COE	Corps of Engineers
COE	U.S. Army Corps of Engineers
CPR	Cardiopulmonary resuscitation
CQC	Construction Quality Control
CRZ	Contamination reduction zone
CSD	Construction Services Division
dBA	Decibel in the A-weighted scale
DOT	Department of Transportation
DRIs	Direct reading instruments
EMS	Emergency medial services
EPA	Environmental Protection Agency
EZ	Exclusion Zone
GFCI	Ground fault circuit interrupter
gpm	gallons per minute
H&S	Health & Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High-efficiency particulate air (P100 filter)
HSP	Health & Safety Plan
IDLH	Immediately dangerous to life or health
LEL	Lower explosive limit
MDS	Medical Data Sheet
mg/m ³	milligram per cubic meter
mph	miles per hour
MSDS	Material Safety Data Sheet
NA	Not applicable
NAM	Negative Air Machine
NE	No level established
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety & Health Administration
PCM	Phase Contrast Microscopy
PELs	Permissible exposure limits
PID	Photoionization Detector
PjM	Project Manager
PPE	Personal protective equipment
psi	pounds per square inch
REL	Recommended exposure limit

List of Acronyms, continued

RPM	Revolutions per minute
SHSO	Site Health & Safety Officer
SMS	Safety Management Standard
SOP	Standard Operating Procedure
STEL	Short-term exposure limit
SZ	Support Zone
TLV®	Threshold limit values
TWA	Time-weighted average
USCG	U.S. Coast Guard

1.0 Introduction

The health and safety (H&S) requirements for the URS Construction Services Division (CSD) and subcontractor personnel engaged in the activities associated with the removal and/or abatement of asbestos and vermiculite at the Libby Asbestos Site Export Plant at Libby, Montana, are defined in this Health and Safety Plan (HSP). This HSP addresses general site H&S requirements and, specifically, removal of soils, debris, and vermiculite; preparation of a disposal location at the mine; transportation and disposal of materials; and property restoration. The asbestos abatement contractor, ACandS, will prepare a Building Abatement/Decontamination HSP (Attachment 1 to this appendix) for cleaning buildings/contents, and structures. Standard H&S requirements, protocols, and procedures are presented in the URS Corporate Health and Safety Program and Management System Manual and Safety Management Standards (SMSs) (1999) referenced in this HSP, an electronic copy of which will be maintained on site. URS will maintain on site a project Health and Safety Manual. The manual will contain this HSP prepared by the Project Certified Industrial Hygienist (CIH) and the required H&S certifications and documentation.

The HSP identifies the potential hazards present at Libby work sites and the protocols, equipment, and control measures to be implemented in order to protect workers from exposure to these hazards. Background information on the Libby site and the work tasks associated with this project are described in the Work Plan for the project. This HSP describes the key H&S organization and personnel responsible for implementing the HSP; their qualifications and responsibilities; training and medical surveillance requirements for H&S and field personnel, including copies of certificates and other training and medical surveillance documentation for URS personnel assigned to the Libby project; types and levels of personal protective equipment (PPE), control measures required during normal conditions, and contingency PPE and controls to be used for more extreme conditions; site and personal monitoring requirements; site control and security measures; decontamination protocols; reports and recordkeeping; and emergency response procedures.

The HSP was prepared in accordance with H&S standards, provisions, and requirements specified in the following regulations and guidance documents:

- U.S. Environmental Protection Agency (EPA) Standard Operating Safety Guides. (EPA 1988);
- Title 29 *Code of Federal Regulations* (CFR) Section 1910 (29 CFR 1910), Occupational Safety and Health Administration (OSHA) General Industry Standards;

- 29 CFR 1926, OSHA Safety and Health Regulations for Construction;
- 29 CFR 1910.120 OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER);
- Army Corps of Engineers' Safety and Health Requirements Manual (COE 1996);
- National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards (NIOSH 1997);
- NIOSH, OSHA, U.S. Coast Guard (USCG), EPA. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH 1985);
- American Conference of Governmental Industrial Hygienists (ACGIH) 1999 TLVs® and BEIs®, Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices (ACGIH 1999);
- URS Corporation Health and Safety Program and Management System (URS 1999) SMS 17, Hazardous Waste Operations; and
- American National Standards Institute (ANSI). Standards for emergency eye wash/showers (ANSI Z358.1-1998), safety glasses (ANSI Z87.1-1989), hard hats (ANSI Z89.1-1997, Type I, Class E), hearing protection (ANSI S3.19-1974), Tyvek® coveralls (ANSI/ISEA 101-1996, sizing requirements), safety boots (ANSI Z41 PT 91 M/F I/75 C/75).

1.1 Site Description

See the project Work Plan.

1.2 Planned Activities

The HSP identifies the procedures, and/or policies designed to address H&S for the following work activities at the Libby site:

- Preparation of site property;
- Cleaning (abatement) of buildings/contents, and structures (addressed in the Building Abatement/Decontamination Plan);
- Excavation of soil, debris, and vermiculite;
- Preparation of disposal location at the mine;
- Transportation and disposal of waste; and
- Property restoration.

The following individual tasks to complete the removal action activities, described in detail in the project Work Plan, are addressed in Table B4-1, Task Hazard Analysis of this HSP:

- Mobilization;
- Site preparation;
- Furnish/install/operate and maintain Sprung Structure;
- Buildings decontamination (addressed in Building Abatement/Decontamination Plan);
- Mine site disposal location preparation;
- Transportation to and disposal at mine site;
- Surface excavation;
- Backfill and compaction (site restoration); and
- Demobilization.

2.0 Health And Safety Organization

As with all aspects of fundamental business operations, implementing and enforcing H&S requirements is a team effort on the part of URS and subcontractor personnel. However, because of the complex and dynamic nature of worker safety policy, a team of individuals devoted specifically to H&S is required to aid URS management in administering an effective and efficient program. The following describes the URS H&S organizational structure and summarizes the primary areas of responsibility.

2.1 URS Management

URS management is committed to a safe and healthful work environment. URS believes that health and safety is a line responsibility of project management and employees. To that end, management will work toward ensuring that all project management and employees comply with H&S requirements and will institute corrective actions whenever the need for such actions becomes apparent. With advice from the Corporate H&S Director and Project Certified Industrial Hygienist (CIH), URS management will initiate immediate modifications or corrective actions directly through the Project Manager (PjM).

2.2 Corporate Health and Safety Director

The URS Corporate H&S Director, Phil Jones, CIH, is responsible for developing and administering Corporate H&S programs nationwide. His duties include:

- Establishing company or corporate H&S policy;
- Developing SMSs;
- Selecting H&S staff;
- Developing and managing the H&S budgets;
- Establishing requirements and criteria for H&S equipment;
- Briefing management on H&S concerns and corrective actions; and
- Appraising the corporate H&S program performance.

2.3 Project Certified Industrial Hygienist (CIH)

The Project CIH, Jim Larson, CIH, CSP, is responsible for administering the URS program for URS Radian CSD projects. His primary responsibilities as they relate to the Libby project include:

- Develop and approve this HSP;
- Review and approve ACandS's Building Abatement/Decontamination HSP;
- Review H&S qualifications of URS and subcontractor personnel assigned to perform field work at Libby work sites;
- Develop the project Safety and Health Manual;
- Participate in the project kick-off meeting and initial site safety meeting;
- Conduct periodic evaluations of the Libby work sites for compliance with policies and procedures specified in this HSP and Corporate H&S Program;
- Review project logs, inspection, and air monitoring reports;
- Direct liaison activities among URS, WR Grace and Company (Grace), OSHA, and other federal, state, and local government agency personnel responsible for H&S issues; and
- Assist management in the investigation of injuries, illnesses, and significant incidents that occur at the Libby sites and provide URS CSD management with reports of findings.

2.4 Site Health And Safety Officer

Ms. Lisa Orgera has been assigned as the Site Health and Safety Officer (SHSO). She will coordinate and monitor site-specific H&S concerns at Libby work sites. The SHSO will be on site during all work activities at Libby. Only employees who satisfy the training and medical surveillance requirements specified in this HSP and have a comprehensive understanding of project activities are allowed to serve as a SHSO. Consistent with URS's approach that health and safety is a line responsibility, the SHSO will also serve as Construction Supervisor responsible for overseeing field activities at Libby in addition to her H&S responsibilities. The SHSO, in addition to other project-related duties, will have the following primary H&S responsibilities:

- Ensure field activities are conducted in accordance with the provisions and requirements of the HSP and URS H&S Program;
- Verify that personnel are medically qualified, trained, and have reviewed and are prepared to implement the procedures defined in the HSP;
- Conduct and document initial site-specific training for all site personnel entering designated or contaminated work zones of the Libby site. The training will cover the use of safety, health, respiratory, and protective equipment, as well as the safety and security procedures to be implemented at the work site;
- Conduct and document follow-up site-specific training for new personnel or visitors, subcontractor personnel entering designated or contaminated Libby work zones;

- Conduct daily site safety briefings covering specific H&S items for the work to be performed that day;
- Prepare, sign, and maintain training logs on site. The logs are to document personnel in attendance, the date/time of training sessions, topics covered, equipment demonstrated and used by personnel, prohibitions, and other pertinent information;
- Complete daily safety inspection and logs and complete the seven day progress report that will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work;
- Observe PPE use for compliance with the HSP and the Building Abatement/Decontamination HSP;
- Observe and assess air monitoring conducted by ACandS, Koch Environmental Health, Inc. ([KEH] the air monitoring contractor), and URS personnel. Ensure monitoring of personal exposure in the work area, area monitoring, calibration of instruments, and weekly reporting of air monitoring results;
- Control work site access, establish and maintain (when necessary) work zone boundaries and access points;
- Assess daily decontamination procedures for compliance with the HSP and the Building Abatement/Decontamination Plan;
- Ensure work sites are clean and free from debris and wastes;
- Ensure hazardous materials and fuels are safely handled, stored, and disposed of and that Material Safety Data Sheets (MSDSs) are on file for all chemicals used on site and that chemical containers are properly labeled per OSHA hazard communication requirements;
- Develop and establish emergency procedures, ensure appropriate emergency response personnel are notified in the case of an imminent health risk or other emergency, and coordinate/assist response personnel as necessary;
- Immediately report verbally any deviations from the HSP, near-misses, injuries, illnesses, and significant incidents that occur at the Libby site to the PJM and Project CIH;
- Assist in the investigation of all accidents, injuries, illnesses, and incidents occurring on site; and
- Order shutdown of field activities on determination of an imminent H&S hazard and advise URS and subcontractor personnel of the hazard.

2.5 Employees

Each URS employee must do their part to reduce potential hazards in the work environment. Field team personnel are responsible for taking all reasonable precautions to prevent injury to themselves, fellow workers, subcontractor personnel, site visitors, and the

public. Personnel are required to review and adhere to the provisions of this HSP and report all accidents and any unsafe conditions to the SHSO. Specifically, employees are required to:

- Evaluate the hazards associated with their work assignment;
- Comply with all H&S requirements applicable to their work assignments;
- Report to the SHSO all unsafe conditions, work-related injuries, or illnesses;
- Participate in training, medical surveillance, and workplace monitoring programs applicable to their work assignments.

NOTE: Any individual observing an operation that presents a clear and imminent danger to the environment or to the health and safety of site personnel, subcontractors, visitors, or the public has the authority to initiate a stop-work action and then notify their supervisor.

2.6 Subcontractor and Vendor Personnel

Implementation of the policies and procedures of the HSP is intended to reduce the potential for injury and illness with respect to URS employees. Subcontractors will also benefit. Subcontractors are expected to comply with the requirements of the HSP as well as their own H&S procedures. However, neither URS management nor employees can protect subcontractors as well as those parties can protect themselves. If a subcontractor's unsafe practices are observed, the SHSO is to be immediately informed so that subcontractor supervisory personnel can be advised. Subcontractors will be held financially responsible for any shutdown or delays caused by their employees unsafe work practices.

3.0 Training and Medical Surveillance Requirements (SMS 17, 24)

Field personnel working within a hazardous waste site designated work zone [e.g., Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ)] during building decontamination, soil excavation, and transportation and disposal at the mine site must have successfully completed classroom and field training for hazardous waste site operations, in accordance with OSHA HAZWOPER requirements (29 CFR 1910.120[e]). Pre-assignment training requirements for the Libby site include successful completion of 40-hour initial H&S training, 3-day site-supervised field work, and annual 8-hour H&S refresher. In addition, the SHSO will have 8-hour HAZWOPER Supervisor training. At least two URS field team members will have a current valid certification in standard first aid and cardiopulmonary resuscitation (CPR).

In addition to HAZWOPER training, ACandS asbestos abatement workers and supervisors performing building decontamination will be trained and certified according to 40 CFR, Part 763, Subpart E.

Heavy equipment operators will be qualified on the basis of training and experience as determined by the SHSO. Haul truck operators will have current commercial drivers' licenses (CDLs).

URS field personnel are required to participate in the URS Corporate Medical Surveillance Program, in accordance with the requirements specified by OSHA (29 CFR 1910.120[f]) for cleanup operations at uncontrolled hazardous waste sites. All field personnel potentially exposed to hazardous substances/health hazards, such as those in designated work zones, must have completed either a baseline or annual medical surveillance physical examination and been found to be medically fit and qualified to wear respiratory protective equipment prior to their assignment to Libby work site.

The Medical Surveillance Program in every URS office nationwide is overseen by Workcare, an occupational medicine consultant firm located in Orange, California (800-455-6155). The exams are conducted by licensed physicians approved and overseen by Workcare's Dr. Peter P. Greaney, a physician board-certified in occupational medicine. The results of each employee's physical exam and work history are thoroughly reviewed by Dr. Greaney, who determines whether individuals are medically qualified to work at a hazardous or other work site, in accordance with the provisions of 29 CFR 1910.120, and 29 CFR 1910.34 for the use of respiratory protection.

ACandS asbestos abatement workers and supervisors and KEH air monitoring personnel engaged in building decontamination will participate in a medical surveillance program, in accordance with the requirements specified by OSHA (29 CFR 1910.120 [f]), and will be medically fit and qualified to wear respiratory protective equipment prior to their assignment to Libby work site.

Initial site-specific H&S training is to be conducted by the SHSO and other designated and qualified individuals prior to initiating on-site activities. The training will include instruction in the use of safety equipment and PPE, hazards known or potentially present at the work site, each individual's assigned work tasks and responsibilities, monitoring activities, safety and security procedures, review of the HSP, and other safety requirements unique to the work site. Subsequent to the initial safety trainings, follow-up training sessions will be conducted for new personnel or visitors. Additional follow-up training will also be conducted whenever significant changes in work tasks or work-site conditions may affect worker safety.

Daily "tailgate" safety briefings will be conducted by the SHSO and qualified designee prior to each day's work activities. The tailgate will address H&S issues specific to the work for the day. All training will be appropriately documented by the SHSO, including time/dates of the training, topics covered, and individuals attending the training.

Training and medical surveillance requirements for project personnel working at different levels of participation are summarized in Table B3-1.

Table B3-1. Libby Site Health and Safety Training Requirements

Requirement			Employee Participation Level				
			HAZ S	HAZ 1	ASB S	ASB 1	ASB 2
Medical	i.	Baseline Medical Examination (29CFR1910.120[f])	X	X			
	ii.	Annual Medical Examination (29CFR1910.120[f])	X	X			
	iii.	Asbestos Medical Examination	X	X	X	X	X
Training	i.	40-hour Initial Health & Safety Training	X	X	X	X	X
	ii.	Qualified for Respirator Use (includes fit test)	X	X	X	X	X
	iii.	24-hour Field Activities Training	X	X	X	X	X
	iv.	Site-Specific Training	X	X	X	X	X
	v.	Annual 8-hour Refresher Training	X	X	X	X	X
	vi.	8-hour Management and Supervisor Training	X				
	viii.	Asbestos Worker Certification				X	
	ix.	Asbestos Supervisor Certification			X		
	x.	First Aid *	X	X	X		
	xi.	Annual CPR *	X	X	X		

Notes:

X Indicates training requirement

* At least two persons at the site shall have current valid certification to administer first aid and CPR.

Levels of Participation

HAZ S: On-site supervisory personnel potentially exposed to hazardous substances/health hazards. This level includes site supervisors and SHSOs.

HAZ 1: General site workers, including equipment operators, general laborers, and haul truck drivers engaged in hazardous substance removal, transportation, or disposal activities who may, or potentially may, be exposed to hazardous substances/health hazards.

ASB S: On-site ACandS asbestos supervisory personnel.

ASB 1: ACandS asbestos abatement workers.

ASB 2: KEH asbestos air monitoring personnel.

4.0 Hazard Assessment

In accordance with the URS (1999) Corporate Health and Safety Program and Management System Manual, a Project Hazard Analysis, which is included in the Project H&S manual, has been conducted to identify the URS SMSs relevant to the Libby project. This section of the HSP provides an assessment of the specific chemical, biological, and assorted physical and construction-related safety hazards anticipated during the work tasks identified in Subsection 1.2. The Task Hazard Analysis in Table B4-1 provides a summary of the work tasks, potential hazard(s) associated with the tasks, and the control measures that will be implemented. Relevant SMSs are referenced.

4.1 Chemical Hazards (SMS 2, 43)

This section identifies the hazardous substances of concern that may pose a potential exposure risk to field personnel. The substances include asbestos and total particulates. The principal route of exposure to these substances is inhalation, and to a much lesser degree, ingestion of asbestos fibers. Table B4-2 summarizes the general toxicological information (e.g., potential target organs, health effects, medical monitoring in case of exposure) for these substances. Table B4-3 identifies OSHA-enforceable worker exposure standards, or Permissible Exposure Limits (PELs). Exposure to any of these chemicals in excess of the PELs is prohibited without appropriate respiratory protection. In addition, airborne concentrations exceeding more stringent standards such as ACGIH Threshold Limit Values (TLVs) or NIOSH Recommended Exposure Limits (RELs) will also be used to define appropriate Action Levels for instituting controls (additional dust suppression, monitoring, respiratory protection, temporary suspension of work).

Personnel may also be exposed to fuels for diesel- or gasoline-powered heavy equipment used at Libby work sites to excavate, scrape, compact, haul materials, etc., and magnesium chloride used for dust suppression. MSDSs will be maintained and available at the Libby field trailer for all hazardous materials that are used or stored at the work site. All chemical containers will be labeled according to OSHA hazard communication requirements.

4.2 Biological Hazards

Biological hazards that may be encountered at Libby work sites consist primarily of insects, spiders, and snakes. Individuals with allergies to insects (e.g., bee or wasp stings) should remember to note this fact on the Medical Data Sheet (MDS) they are required to complete, or to remind the SHSO prior to the start of field activities. A first aid kit will be available at the work site to treat minor skin irritations, stings, and bites.

Table B4-1. Task Hazard Analysis

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation <ul style="list-style-type: none"> • Movement of material and equipment to site. • Set up of site trailer. • Installation of site electrical. • Connex set up. • Establishment of traffic routes, parking, equipment laydown yards. • Fencing of areas. • Set up of personnel decontamination trailer. • Set up of sanitary facilities. • Set up of equipment decontamination pads. 	Hazardous Chemicals	2	Minimize quantities of hazardous chemicals to only what is needed. No hazardous chemicals are to be brought on site without a Material Safety Data Sheet (MSDS). Maintain MSDSs for hazardous chemicals used on site, including subcontractors, in the job trailer. Store chemicals in approved containers. Properly label all chemical containers in accordance with the OSHA Hazard Communication Standard. Train employees exposed to hazardous chemicals during site safety briefings.
	Biological hazards		Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.
	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 15 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Ladders	28	Inspect ladders before use; remove damaged ladder from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation, (cont).	Electrical shock or Electrocutation	12	Temporary power installed per code by qualified electrician. Three-foot clearance around electrical boxes. GFCIs on all temporary cords. Grounding of electrical circuits. Check electrical cords for broken insulation and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment. Three pronged grounded plug or double-insulated tools. Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment to be inspected prior to arrival on site, then daily. Equipment maintained in good operating condition. Remove defective equipment from service. Rollover Protection (ROP) as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Hand and Power Tools	16	<p>All hand tools and power tools shall be in good repair and will be used only for the task for which they were designed.</p> <p>All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles shall be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools shall not be carried in pockets.</p> <p>Wrenches shall have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres that exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Do not operate any controls when hands are wet.</p> <p>Thorough training and demonstration of competence to operate equipment.</p> <p>GFCIs on all electrical cords.</p> <p>Three-pronged grounded plug or double-insulated tools.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards in place.</p> <p>Machine guarding must not be removed for any reason except during necessary Maintenance and repair.</p> <p>Lockout/tagout prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lock out/tag out.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p>
	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Fire/ Explosion	14,15	<p>All electrical wiring, lights and other equipment in hazardous locations will be explosion proof. Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids. Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling). Refuel equipment in designated areas from approved fuel trucks or storage tanks. Stationary fuel storage tanks to be diked. No matches, lighted or unlit cigarettes, cigars, cigarettes, pipes, or lighters will be taken into the area where work is being done or in any fueling areas. Approved safety cans used to store flammable liquids. Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.</p>
	Hot Work	20	<p>Complete Hot Work Permit and have it signed by the SHSO. Inspect area for flammables and combustibles prior to Hot Work. Test for flammable atmospheres; ventilate to less than 10% LEL. Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area, and a clear 35-foot radius around area free of flammable/combustible materials. Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant. Torches to be lit only with friction spark lighters, and never to be left unattended when lit. Cutting torches will be outfitted with anti-flashback back devices. Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®). Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel. All grinders to be equipped with guards and not to exceed specified grinding disc RPM. Inspect and "ring test" grinding wheels prior to use. Secure all cylinders in upright position with valve caps in place and stored in protected area away from heat, combustible and incompatible materials. Station fire watch. Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.</p>
	Pressurized gas cylinders	15	<p>Gas cylinder valves are to be closed when not in use. Hoses are to be periodically inspected and replaced when worn or damaged. Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use. Secure cylinders with chains or store in cylinder rack.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Mobilization and Site Preparation (cont.)	Severe weather conditions (e.g., lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Furnish/Install/Operate and Maintain Sprung Structure <ul style="list-style-type: none"> • Prepare gravel base for structure. • Move sprung structure materials to gravel base. • Set up sprung structure. • Installation of sprung structure electrical. 	Biological hazards		Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.
	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds.
	Ladders	28	Inspect ladders before use; remove damaged ladder from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Furnish/Install/Operate and Maintain Sprung Structure, (cont.).	Electrical shock or electrocution	12	<p>Temporary power installed per code by qualified electrician.</p> <p>GFCIs on all temporary cords.</p> <p>Grounding of electrical circuits.</p> <p>Three-foot clearance around electrical boxes.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Thorough training and demonstration of competence to operate equipment.</p> <p>Three-pronged grounded plug or double-insulated tools.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.</p>
	Lifting/Back Injury	45	<p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p>Wear required PPE, including work gloves and steel-toed boots.</p>
	Heavy Equipment	19	<p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment to be inspected prior to arrival on site, then daily.</p> <p>Equipment maintained in good operating condition. Remove defective equipment from service.</p> <p>Rollover Protection (ROP) as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Furnish/Install/Operate and Maintain Sprung Structure (cont.)	Hand and Power Tools	16	<p>All hand tools and power tools shall be in good repair and will be used only for the task for which they were designed.</p> <p>All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles shall be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools shall not be carried in pockets.</p> <p>Wrenches shall have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres, which exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Thorough training and demonstration of competence to operate equipment.</p> <p>Do not operate any controls when hands are wet GFCIs on all electrical cords.</p> <p>Three-pronged grounded plug or double-insulated tools.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards in place.</p> <p>Machine guarding must not be removed for any reason except during necessary Maintenance and repair.</p> <p>Lockout/tagout prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lockout/or tagout.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p>
	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Furnish/Install/Operate and Maintain Sprung Structure (cont.)	Falls from aerial lift	7,40	<p>Only trained, qualified personnel to operate aerial lifts.</p> <p>Review manufacturer's operation instructions prior to use.</p> <p>Provide personal fall arrest harness and lanyard.</p> <p>Train and certify personnel in basket in personal fall arrest systems.</p> <p>All aerial lifts to be inspected prior to arrival on site, then daily.</p> <p>Survey route of travel for obstructions, overhead hazards.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Set aerial lift brake and chock wheels on incline prior to use.</p>
	Cranes and rigging	38,41	<p>Any cranes that are to be used on the site will require proof of annual inspection by a qualified competent person within the last 12 months.</p> <p>Cranes/booms/hoists must be inspected by a qualified competent person prior to use after each installation.</p> <p>The crane/boom/hoist must be inspected and tested daily prior to each use by the operator and the inspection documented to the Project Files. Any defects must be corrected before use.</p> <p>Rated load capacities, recommended operating speeds, and special hazard warnings or instructions must be conspicuously posted on all equipment. Instructions or warnings must be visible from the operator's station.</p> <p>No modification to any cranes/hoists will be acceptable without the written approval of the manufacturer or designed by a Registered Professional Engineer.</p> <p>The weights of all loads must be known or a load indicating device must be used.</p> <p>Only qualified, licensed crane operators.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>At no time shall any worker on the ground be allowed under a load or within the swing radius of a load.</p> <p>Ground personnel will not attempt to guide or move suspended loads except with the use of "tag lines".</p> <p>Accessible areas within swing radius of a crane must be barricaded to prevent employees from being struck or crushed by the crane.</p> <p>Crane operators will follow the direction of the designated rigger/signalman.</p> <p>All rigging must be inspected by a competent person and marked as inspected before each use and annually.</p> <p>All rigging must be clearly labeled as to capacity. All rigging will be stored in a loft or equivalent area where it will not be exposed to the elements.</p> <p>Wire ropes must be kept in good repair without deformities. Softeners must be used when wire rope is used for hoisting in a basket configuration. 3:6 rule on broken wires.</p> <p>Synthetic slings must be carefully maintained. Any synthetic sling whose red warning has been exposed will be removed from service.</p> <p>Knots will not be tied in rigging.</p> <p>All riggers/signalmen must be trained and provided with rigging handbook.</p> <p>Provide safety latches on all load hooks.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Furnish/Install/Operate and Maintain Sprung Structure (cont.)	Severe weather conditions (e.g. lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Building Decontamination	Inhalation of airborne asbestos fibers, and total particulates	NA	See ACandS Building Abatement/Decontamination HSP.
	Biological hazards		
	Traffic/Vehicles		
	Noise		
	Heat Stress		
	Electrical and mechanical equipment		
	Lifting/Back Injury		
	Hand and Power Tools		
	Ladders		
	Slips, trips, falls		
	Falls from aerial lift		
	Pressure Washer		
	Scaffolding		

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
<p>Transportation to and Disposal at Mine Site</p> <ul style="list-style-type: none"> Truck decontamination Haul material to mine. Grading contaminated material at the mine. Covering contaminated material at the mine. 	Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers		<p>Wear proper PPE (hardhat, faceshields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall)</p> <p>Never point nozzle at personnel.</p> <p>Operate only within prescribed decon area.</p>
	Traffic/Vehicles	19,32	<p>Implement traffic control plan.</p> <p>Haul truck drivers to have CDLs.</p> <p>Inspect work and travel area to verify that it will support heavy equipment traffic.</p> <p>Establish marked parking area for personal vehicles and visitors.</p> <p>Follow only the designated traffic routes.</p> <p>Obey all traffic signs and controls.</p> <p>Do not drive over 5 mph in the work area or 20 mph on mine access road.</p> <p>Cone or barricade work/storage areas.</p> <p>Wear seat belts in moving vehicles at all times.</p> <p>Do not ride in truck beds.</p> <p>Wear traffic safety vests.</p>
	Inhalation of airborne asbestos fibers and total particulates	8,43	<p>Implement dust control plan.</p> <p>Material thoroughly wetted prior to transport.</p> <p>Covered loads.</p> <p>Monitor work area with DRIs prior to entry and throughout intrusive and removal work activities when contaminated material or subsurface soils are exposed—exceedance of any specified action level (see Tables 4-3, 6-2) requires further dust suppression and use of respirators as indicated in Section 5.2 of this HSP.</p> <p>Truck operators to remain in truck cab, with window closed during loading and hauling.</p> <p>Work or stand on the upwind side of contamination.</p>
	Noise	26	<p>Identify and post high noise level areas.</p> <p>Avoid high noise areas, limit exposure to noise to short periods.</p> <p>Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA).</p> <p>Enclose or muffle high noise equipment such as engines, pumps, and compressors.</p>
	Lifting/Back Injury	45	<p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p>Wear required PPE, including work gloves and steel-toed boots.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Transportation to and Disposal at Mine Site (cont.)	Heavy Equipment	19	<p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment to be inspected prior to arrival on site, then daily.</p> <p>Equipment maintained in good operating condition. Remove defective equipment from service.</p> <p>ROP as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Transportation to and Disposal at Mine Site (cont.)	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>
	Severe weather conditions (e.g. lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation <ul style="list-style-type: none"> Clearing a grubbing Remove 12 to 18 inches of soil Load haul trucks Hand digging Soil sampling Equipment decontamination 	Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers		Wear proper PPE (hardhat, faceshields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area.
	Traffic/Vehicles	19,32	Implement traffic control plan. Haul truck drivers to have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Underground utilities	34	Prior to performing excavation, clear and flag utility locations. Hand-probe locate utilities prior to excavation. Support exposed piping to prevent breakage.
	Inhalation of airborne asbestos fibers and total particulates	8,43	Implement dust control plan. Material thoroughly wetted prior to transport. Covered loads. Monitor work area with DRIs prior to entry and throughout intrusive and removal work activities when contaminated material or subsurface soils are exposed—exceedance of any specified Action Level (see Table 6-2) requires further dust suppression and use of respirators as indicated in Section 5.2 of this HSP. Truck operators to remain in truck cab, with window closed during loading and hauling. Work or stand on the upwind side of contamination.
	Heat Stress	18	Monitor work site temperatures; Monitor workers for early signs of heat stress, take body temperatures as necessary; Follow heat stress work rest cycles per SMS. Provide drinking water, work breaks, scheduling during cooler parts of day.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation (cont.)	Lifting/Back Injury	45	<p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p>Wear required PPE, including work gloves and steel-toed boots.</p>
	Heavy Equipment	19	<p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment to be inspected prior to arrival on site, then daily.</p> <p>Equipment maintained in good operating condition. Remove defective equipment from service.</p> <p>Rollover Protection (ROP) as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p>
	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Surface Excavation (cont.)	Severe weather conditions (e.g. lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Back Fill and Compaction <ul style="list-style-type: none"> Loading and hauling backfill Grading backfill 	Traffic/Vehicles	19,32	Implement traffic control plan. Haul truck drivers to have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Back Fill and Compaction (cont.)	Heavy Equipment	19	<p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment to be inspected prior to arrival on site, then daily.</p> <p>Equipment maintained in good operating condition. Remove defective equipment from service.</p> <p>ROP as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p>
	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>
	Severe weather conditions (e.g. lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization <ul style="list-style-type: none"> • Movement of material and equipment offsite. • Take down of site trailer. • Removal of site electrical. • Connex take down. • Removal of fencing. • Removal of personnel decontamination trailer. • Removal of sanitary facilities. • Take down of equipment decontamination pads. 	Hazardous Chemicals	2	Remove hazardous chemical to off-site storage for future use. Send MSDSs with chemicals. Verify proper containers and labeling of chemicals prior to removal. Train employees exposed to hazardous chemicals during site safety briefings.
	Biological hazards		Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present.
	Traffic/Vehicles	19,32	Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	Ladders	28	Inspect ladders before use; remove damaged ladder from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed.
	Noise	26	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Electrical shock or electrocution	12	Temporary power removed per Code by qualified electrician. GFCIs on all temporary cords. Check electrical cords for broken insulation and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment; Three-pronged grounded plug or double-insulated tools Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.
	Lifting/Back Injury	45	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	Heavy Equipment	19	Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment to be inspected prior to arrival on site, then daily. Equipment maintained in good operating condition. Remove defective equipment from service. ROP as required. Ten feet minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic.

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Hand and Power Tools	16	<p>All hand tools and power tools shall be in good repair and will be used only for the task for which they were designed.</p> <p>All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles shall be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools shall not be carried in pockets.</p> <p>Wrenches shall have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres, which exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Thorough training and demonstration of competence to operate equipment.</p> <p>Do not operate any controls when hands are wet.</p> <p>GFCIs on all electrical cords.</p> <p>Three-pronged grounded plug or double-insulated tools.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards in place.</p> <p>Machine guarding must not be removed for any reason except during necessary Maintenance and repair.</p> <p>Lockout/tagout prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lockout/tagout.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p>
	Slips, trips, falls	21	<p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Fire/Explosion	14,15	<p>All electrical wiring, lights and other equipment in hazardous locations will be explosion proof. Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids. Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling). Refuel equipment in designated areas from approved fuel trucks or storage tanks. Stationary fuel storage tanks to be diked. No matches, lighted or unlit cigarettes, cigars, cigarettes, pipes, or lighters will be taken into the area where work is being done or in any fueling areas. Approved safety cans used to store flammable liquids. Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.</p>
	Hot Work	20	<p>Complete Hot Work Permit and have it signed by the SHSO. Inspect area for flammables and combustibles prior to Hot Work. Test for flammable atmospheres; ventilate to less than 10% LEL. Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area and a clear 35-foot radius around area free of flammable/combustible materials. Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant. Torches to be lit only with friction spark lighters, and never to be left unattended when lit. Cutting torches will be outfitted with anti-flashback back devices. Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®). Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel. All grinders to be equipped with guards and not to exceed specified grinding disc RPM. Inspect and "ring test" grinding wheels prior to use. Secure all cylinders in upright position with valve caps in place and stored in protected area away from heat, combustible and incompatible materials. Station fire watch. Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.</p>
	Pressurized gas cylinders	15	<p>Gas cylinder valves are to be closed when not in use. Hoses are to be periodically inspected and replaced when worn or damaged. Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use. Secure cylinders with chains or store in cylinder rack.</p>

Table B4-1. Task Hazard Analysis, continued

Work Task	Hazard	SMS	Control Measures
Demobilization (cont.)	Severe weather conditions (e.g., lightning, high winds)		<p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p>

Notes:

CDL	=	Commercial driver's license
dbA	=	decibel in A-weighted scale
DRI	=	Direct reading instrument
GFCI	=	Ground fault circuit interrupter
LEL	=	Lower explosive limit
mph	=	miles per hour
MSDS	=	Material safety data sheet
OSHA	=	Occupational Safety and Health Administration
PjM	=	Project Manager
PPE	=	Person protective equipment
psi	=	pounds per square inch
ROP	=	Rollover protection
RPM	=	Revolutions per minute
SHSO	=	Site Health and Safety Officer
SMS	=	Safety Management Standard

Table B4-2. Potential Chemical Hazards

Chemical Class/Compounds	Uses	Target Organs	Potential Effects	Medical Monitoring
Asbestos	Thermal system insulation; spray-on insulation; transite panels and material; mastic; brake linings; found in vermiculite ore at Libby, Montana mine site.	Lungs Eye	Dyspnea; restricted pulmonary function Asbestosis; mesothelioma ^(a) Eye irritation	Occupational/general medical history emphasizing prior exposure to asbestos. Medical examination with focus on lung. Chest x-ray. Pulmonary function test.
Total Particulate	Naturally occurring; associated with soil disturbance.	Eyes Respiratory System	Eye irritation; upper respiratory system irritation; accumulation in lungs.	

^(a) Long-term effects generally manifest in 10 to 30 years.

Table B4-3. Permissible Inhalation Exposure Levels

Contaminant	OSHA - PEL/STEL	ACGIH - TLV/STEL	NIOSH REL	IDLH
Asbestos	.1 f/cc/ 1f/cc (30 min.)	.1 f/cc A1	.1 f/cc	Ca
Total Particulate	15mg/m ³ total 5 mg/m ³ respirable	10 mg/m ³ total 3 mg/m ³ respirable	NE	NE

Notes:

- A1 = Confirmed human carcinogen
- ACGIH = American Conference of Governmental Industrial Hygienists
- Ca = "Ca" designation indicates that NIOSH recommends substance be treated as a potential human carcinogen and exposures reduced to lowest feasible concentration. Non-enforceable standard.
- f/cc = Fibers per cc
- IDLH = National Institute for Occupational Safety and Health (NIOSH) "Immediately dangerous to life or health." The exposure concentration represents a condition that poses a threat that is "...likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."
- NE = No level value established.
- PEL = Permissible Exposure Limit (29 CFR 1910.1000). Occupational Safety and Health Administration's PELs, expressed as an 8-hour time-weighted average (TWA) concentration.
- (OSHA)
- STEL = Short-term exposure limit. OSHA and Cal/OSHA 15-minute TWA concentration that should not be exceeded unless otherwise noted.
- TLV = Threshold Limit Value®. American Conference of Governmental Industrial Hygienists' TLVs are non-enforceable guidelines based on an 8-hour TWA. "A1" designation indicates substance recognized by ACGIH as a confirmed human carcinogen; "A2" designation indicates substance is a suspected human carcinogen; "A3" designates carcinogenicity in experimental animals; "A4" designates inadequate evidence to classify substance as carcinogenic in humans or animals; "A5" designates non-carcinogenic in humans based on epidemiologic studies.

Sources: NIOSH 1997; ACGIH 1998; 29 CFR 1910.1000 et seq.

Although most spiders are harmless, there are two species that pose potential hazards: the Brown Recluse or violin spider (*Lox osceles reclusa*) and the Black Widow (*Latrodectus mactans*). Field personnel are reminded to exercise extreme caution when lifting sumps or other covers and when working in dark, dank, enclosed, or heavily covered areas, since spiders are typically found in such microenvironments. Spider bites, although rarely fatal, are often quite painful. Symptoms may include severe pain in the area of the bite, profuse sweating, nausea, abdominal cramps, and difficulty breathing and speaking. First aid procedures for minor insect bites and stings include cold applications; use of soothing lotions (e.g., calamine); and for a bee sting, removal of the venom, stinger, and venom sac. If the bite or sting is suspected to be from a brown recluse or black widow or it produces a severe reaction, implement the following procedures: 1) calm the victim and keep him/her from moving about, preferably in a prone position; 2) remove the venom with a Sawyer extractor (which should be maintained in the first aid kit); 3) immobilize the bitten extremity and keep it below the heart; 4) if necessary, provide artificial respiration or CPR; 5) get the victim to a hospital immediately.

Ticks are common in wooded areas and may carry transmittable diseases. The most common are Rocky Mountain spotted fever, transmitted by the wood tick, and Lyme disease, carried by the deer tick. Recommendations for avoiding tick bites are to wear clothing to cover the skin and walk in open areas rather than through brush. At the end of the day, check your body for ticks, especially in areas where their movement might be restricted such as the ankles, shins, and waist. If a tick is attached to the skin, gently pull it out with tweezers, being careful not to squeeze the tick's body. Clean the bitten area with antiseptic and watch for any rash. If possible, save the tick in a bottle for later identification.

Poisonous snakes are found in most states. Snakes will usually be found on slopes and rocks exposed to sunlight. When in "snake country", look before you step, step on top of rocks and logs, and look for snakes before stepping over these obstacles. In areas where poisonous snakes may be present, a snakebite kit should be included in the first aid kit. Personnel should remember that snake bites are preventable events. Most individuals who are bitten see the snake but then take actions that put them at risk. Give snakes a wide berth—move away, and the snake will not chase you. Always look before you step over an object, before you turn over a rock or log, and before you place your hand in a crevice. Complete outdoor tasks during daylight hours. Personnel should always wear protective clothing (heavy leather work gloves, thick leather safety boots, long-sleeved shirts) when working in areas with tall grass or in a potential snake habitat.

Snakebites are serious and should be treated as though from a venomous snake, such as a rattlesnake (triangular head; thick body; pits between the eyes and nostrils; generally 4 to 6 feet long; blotched brownish, gray, or red coloration; characteristic rattles). Seek medical attention immediately. Symptoms of venomous poisoning include swelling, pain, and tingling at the bite site; tingling and a metallic taste in the mouth; fever, chills, blurred vision, and muscle tremors. Even if the bite is not from a venomous snake, there is a real possibility of tetanus. The following first aid steps should be followed while awaiting emergency medical services.

- Calm the victim and keep hydrated and comfortable,
- Immobilize the affected area and keep at or below the level of heart,
- Remove rings, watches, and other constrictive items before swelling starts; and
- Gently clean the wound with an antiseptic soap and apply sterile dressing; do not apply ice or attempt to cut the bite site or suck out the venom.

The goal of the treatment should be safe and rapid transport to the emergency room without undue anxiety or activity that may accelerate absorption of the venom. A short walk is acceptable if the patient feels up to it and if no alternative is available. A suction device, such as a Sawyer Extractor, can be used to effectively remove up to 30 % of the venom if applied within three minutes of the bite. An extractor, which is applied without incision, should be maintained in the first aid kit and used when there may be a delay in securing emergency medical treatment.

Other animal hazards that could be encountered include wild and domestic animals, primarily dogs. Most wild animals will be frightened away at sight, but the more domestic they are, the less likely they are to run. Consequently, domestic dogs probably represent the greatest threat. However, beware of skunks and porcupines that do not flee or that raise their tails vertically; you could become a target for noxious excretions or quills. The following guidelines are recommended to avoid animal attacks in the field:

- Avoid surprising animals by making noise and make a wide detour around any animals acting abnormally;
- If dogs are present and pose a potential threat, return to the field trailer and notify the SHSO;
- Carry a walking stick to fend off attacks from domestic dogs; and
- Avoid contact with rodents, because they frequently are hosts for Hantavirus and fleas which carry typhus and the plague. Avoid direct contact or inhalation of dust associated with rodent feces. Cleanup shall be conducted using a respirator with

high-efficiency particulate air (HEPA) cartridges, gloves, and a Clorox® solution to wet down nesting material that might contain rodent feces or urine. Dispose of fecal material, nesting material, or dead rodents in a sealed bag.

One of the most prevalent hazards to field personnel is sensitivity to poison oak, poison ivy, or poison sumac (members of the *Rhus* species). These plants are common throughout the U.S. Sensitive individuals should avoid contact and if contact is suspected, promptly wash with soap and water. Wear long sleeves and gloves to help avoid contact. Sensitivity varies considerably, but exposure can result in a debilitating rash if not treated and/or allowed to spread. Exposure to the irritating and sensitizing agent, urushiol, is also possible from the smoke of burning *Rhus* plants. In addition, many plant leaves, bark, berries, or flowers are toxic if ingested.

As indicated in Table B4-1, exposure to chemical hazards will be controlled via the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, dust suppression, cover material), immediately available emergency equipment (first aid, emergency eye wash, fire extinguisher, etc.), and the use of appropriate chemical-resistant clothing and respirators when Action Levels are exceeded. Exposure to contaminants is expected to be limited to intrusive activities when the underlying contaminants could be exposed or contacted. The SHSO will brief all personnel assigned to the work site of the potential hazards. Air monitoring of the work site and breathing zone of potentially exposed workers will be conducted throughout the work shift when intrusive activities are underway.

4.3 Physical Hazards

The Task Hazard Analyses in Table B4-1 identify the physical hazards of concern that pose a potential risk to field personnel. The hazards include vehicle traffic, noise, electrical, hand and power tools, fire/explosion, hot work, above and below ground utilities, heavy equipment operation, material handling, extreme weather conditions (heat stress, lightning, high winds, tornadoes), muscle strains, and slip/trip/fall hazards. Exposure to physical hazards, as indicated in Table B4-1, will be controlled through the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, traffic and site control), immediately available emergency equipment, and the use of appropriate PPE.

5.0 Personal Protective Equipment and Controls

The following subsections identify the appropriate engineering and administrative control measures and PPE for the Libby work sites. The PPE and control measures are designed to limit the risk of exposure to known or potential hazards at the work site. Significant variations or modifications to these requirements, or additional PPE/controls required to meet additional or unexpected site- and task-specific hazards, will require revisions and/or addenda to this HSP, approved by the SHSO and Project CIH.

5.1 Engineering/Administrative Control Measures

Field personnel will be reminded during the initial site-specific training, subsequent follow-up training, and daily safety briefings to be aware of potential chemical and physical hazards and to implement the hazard controls specified in the Task Hazard Analyses (Table B4-1). Field personnel will immediately inform the SHSO, PjM, or other supervisory personnel of any unsafe conditions or new hazards they may encounter. The SHSO is responsible for ensuring that site control measures (e.g., marking, warning signs, placards, erecting barriers, securing and controlling access) and decontamination procedures are implemented.

All hazardous materials and fuels will be stored in appropriately marked/labeled containers, in accordance with the manufacturer's recommendations, and, as approved by the SHSO, stored in secured areas of the work site or the fire locker. All containers will be regularly checked for leaks, and must be clearly labeled, tagged, marked (e.g., signs, labels, Department of Transportation [DOT] placards, etc.) indicating the name/type of hazardous chemical(s) and the H&S hazards. All MSDSs for hazardous materials used on site will be available at the URS field trailer.

Outdoor field activities will be scheduled for daytime hours. If evening or nighttime work is required, lighting will be arranged so that any single lighting unit failure will not leave an area in total darkness. Activities within work areas require a minimum intensity of 30 footcandles. Areas outside of immediate work areas (exitways, walkways, etc.) may require substantially less illumination, normally about 10 footcandles.

General safety rules, as presented in Table B5-1, will be in effect at the Libby work sites. These rules are designed to minimize potential exposure to work site hazards.

Table B5-1. General Safety Rules

- Personnel and authorized visitors at Libby work sites will be required to sign in at the on-site trailer. Visitor access within the work site will be limited to areas outside of designated work zones, or EZ and CRZ. Personnel authorized to work in or enter the EZ or CRZ will be required to meet training/medical surveillance requirements, review and fully understand the HSP, and agree (in writing) to comply with its requirements.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited except in designated work site areas.
- PPE will be used at the work site at the protective level specified in the HSP or as required by the SHSO. The SHSO will ensure that personnel are medically qualified and trained in the use of the PPE, and that the PPE is tested/inspected and found to be clean and in good working order.
- Authorized personnel with facial hair (i.e., over one day's growth) will not be allowed in the EZ whenever respiratory protection is required.
- Personnel and authorized visitors shall remove and discard all disposable PPE prior to leaving the work site.
- Personnel and authorized visitors in the EZ must go through decontamination, including showers, before leaving the site.
- All personnel shall be trained in the site-specific emergency procedures, including the location of emergency equipment, telephone numbers, and hospital route maps.
- Field personnel must use the "buddy system" at all times while working in designated work areas or EZs. If approved by the SHSO, an individual within the EZ may work alone but must be in continuous visual or verbal contact (e.g., cellular phone or two-way radio) with another authorized field team member.
- Equipment shall be kept in proper working order and shall be kept free of accumulated lubricants, contaminants, or other hazardous or flammable substances.
- Safety briefings will be held daily prior to the beginning of each shift.
- Field activities are to be conducted during daylight hours whenever possible. Any work conducted during evening or nighttime hours will require a minimum light intensity of 30 footcandles.

5.2 Dust Control

Throughout surface excavation, and material transport and disposal activities at Libby the surface and exposed subsurface soils will be thoroughly wetted at all times to control dust generation. A water truck will be used throughout these activities supplemented by sprinkler and

pressurized hose. Magnesium chloride will be sprayed on haul roads. Detailed dust control information can be found in the Dust Control Plan for the Libby site.

5.3 Personal Protective Equipment (SMS 29,42)

The level of PPE required at a work site depends not only on existing conditions and hazards but also on the specific work tasks to be performed. Per SMS 29, a PPE Hazard Assessment has been conducted for the Libby project.

To avoid or control exposure to potential chemical and physical hazards, personnel will be provided with, and required to use, PPE that is specific to the individual's work tasks and potential work site hazards. The SHSO and PjM will ensure that the required PPE (e.g., protective footwear; and head, eye, face, hearing, and respiratory protection) is tested, inspected, and maintained in serviceable and sanitary condition during the course of field activities. Any defective PPE will be discarded or returned to the manufacturer.

The presence of asbestos and airborne dust concentrations in open, well-ventilated areas of Libby work sites where dust suppression is in place, particularly in the breathing space of field personnel, are not expected to exceed PELs (see Table B4-3). However, airborne asbestos levels during building decontamination will require respiratory protection that is specified in the ACandS Building Abatement/Decontamination Plan. ACandS will monitor the breathing zone of its personnel during building decontamination and report results to the SHSO. The SHSO, or designee, will monitor the breathing space of field personnel during surface excavation and contaminated material transportation and disposal (see Section 6.0) to evaluate the need for respiratory protection.

Table B5-2 lists the required PPE for each of the work tasks at the Libby Site. These may be modified by SHSO with concurrence of the Project CIH.

In addition to PPE, the following protective equipment will be on site:

- First aid kits with Sawyer Extractor for bites;
- Safety cans;
- Chemical spill kit;
- Lockout/tagout kit;
- GFCIs;

Table B5-2. Task-Specific PPE Requirements

Task	PPE
Mobilization and Site Preparation	Cotton coverall, hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves.
Furnish/Install/Operate and Maintain Sprung Structure	Cotton coverall, hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves, body harness and lanyard in aerial lifts.
Building Decontamination	See ACandS Building Abatement/Decontamination HSP.
Transportation to and Disposal at Mine Site	Inner cotton coverall, hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers; half-face air purifying respirators (APR) with HEPA cartridges.
Surface Excavation	Inner cotton coverall, hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers, half-face air purifying respirators with HEPA cartridges.
Back Fill and Compaction	Cotton coverall, hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves.
Equipment Decontamination	Cotton coverall, rain suit, hardhat, faceshield, rubber steel-toe boots, ear plugs, traffic safety vest, nitrile gloves.
Hot Work	Welding hood with shaded lenses, welding respirator; flame-retardant clothing, (gloves, chaps, aprons), and hearing protection. No disposable protective clothing (e.g. Tyvek®).

- Eyewash bottles in every vehicle;
- Fire extinguishers in every vehicle, at fuel areas, and during hot work;
- Tape, barricades, warning signs, and cones; and
- Cellular telephone or other two-way communication system.

If necessary, NIOSH –approved, half-face air-purifying respirator (APR) with HEPA cartridge is immediately available at the work site:

Respiratory protection will be selected and maintained in accordance with the URS respiratory protection program (SMS 42) and in conformance with OSHA’s revised Respiratory Protection Standard (29 CFR 1910.134). URS’s Respirator Standard Operating Procedure (SOP) form will be completed for each job task requiring respirators, prior to task start-up (see SMS 42). Each URS employee is fit tested for a proper facepiece seal using the quantitative fit test protocol. The employee is then assigned the same NIOSH-approved brand (MSA, North, 3M, etc.), type (half-face), and size respirator for their use. Personnel will be required to perform positive and negative fit checks prior to donning the respirator at the beginning of the work day. The SHSO will instruct personnel in proper maintenance procedures, including daily cleaning,

and replacement of cartridges at the beginning of each shift. A change-out schedule is presented in Attachment 42-4 of SMS 42.

If conditions are encountered requiring a further upgrade (see Action Levels presented in Table B6-2), personnel would evacuate the work site and field activities would be halted until such time as the PjM and SHSO, in consultation with the Project CIH, establish it is safe to resume work.

6.0 Air Monitoring (SMS 43)

6.1 Background Air Samples

Background air sampling will consist of site perimeter sampling at six specific locations (Appendix A) performed by TEM ISO 10312 and work area monitoring by PCM.

Air monitoring for asbestos will be performed by KEH, an independent air monitoring firm. Work area air monitoring will be performed prior to the initiation of building decontamination, surface excavation, and material disposal to establish background levels of asbestos in the air. KEH will place portable sampling pumps along the perimeter of the EZ established for each of these tasks. Air samples will be collected according to NIOSH 7400 method and analyzed by Phase Contrast Microscopy (PCM).

In addition to the KEH background air monitoring, URS will use direct reading instruments (DRIs) to evaluate background levels of airborne total dust and fibers prior to surface excavation, contaminated material transport, and disposal at the mine. DRIs include DataRAM™ Aerosol Monitor for total dust and FAM-1™ Fibrous Aerosol Monitor for airborne fibers.

6.2 Daily Air Monitoring

KEH will conduct daily air monitoring during building decontamination, surface excavation, and material disposal to verify that asbestos fibers are not being released. KEH will place portable air sampling pumps along the downwind perimeter of the EZ established for each of these task. KEH will also collect air samples during building decontamination in the clean side of the decontamination trailer, at the exhaust of any negative air machines, and at the containment exit. Air samples will be collected according to NIOSH 7400 method and analyzed by PCM.

During building decontamination, ACandS will collect daily personal air samples for asbestos on its workers. ACandS will collect time-weighted average (TWA) samples from each worker in the abatement area and 30-minute excursion limit samples from operations most likely to exceed the OSHA 30-minute Excursion Limit.

During surface excavation, contaminated material transport, and disposal at the mine, the SHSO will collect daily personal air samples for asbestos on workers. The SHSO will collect time TWA samples from workers on the ground, heavy equipment operators, and haul truck

drivers, and 30-minute excursion limit samples from operations most likely to exceed the OSHA 30-minute Excursion Limit.

6.3 Final Clearance Air Monitoring

At the conclusion of each building decontamination, KEH will collect final clearance asbestos samples. At the conclusion of the project KEH will also collect asbestos samples at the same locations as its initial background samples for the surface excavation, and material disposal tasks for comparison to the background results.

6.4 Direct-Reading Instrument Monitoring

DRIs will be used by URS to evaluate airborne levels of total dust and fibers during surface excavation, contaminated material transport, and disposal at the mine. DRIs include DataRAM™ Aerosol Monitor for total dust and FAM-1™ Fibrous Aerosol Monitor for airborne fibers.

Data obtained from the DRIs will be used to immediately assess the adequacy of dust control measures; provide rationale for the selection or modification of respiratory protection; and document potential exposures. Monitoring will be conducted by the SHSO or a designated field team member fully trained and qualified in the use of the DRI. Monitoring will be essential during intrusive activities in Libby work areas.

Initially, DRI monitoring will be conducted continuously to establish airborne concentration ranges of total dust and fibers and thereafter as deemed necessary by the SHSO. Monitoring should be initiated when there are changes in site conditions or work tasks. Monitoring will be performed in the area of disturbance (i.e., excavation, haul roads during transport, and disposal), in the breathing zone of the workers, and downwind at the excavation and disposal areas exclusion zone boundary. Total dust and fiber Action Levels for additional dust suppression, or suspension of site activities are in Table B6-2 of this HSP.

Table B6-2. Monitoring Equipment Action Levels

Equipment	Reading ^(a)	Action
FAM-1 Total Fiber Monitor	<0.05 f/cc in the work area or breathing zone	Continue operations with standard PPE for task.
	>0.05 f/cc < 0.1 f/cc in the work area or breathing zone	Increase dust suppression.
	>0.1 f/cc in the work area or breathing zone	Increase dust suppression. Initiate personal air sampling for asbestos.
	>1 f/cc in the work area or breathing zone	Halt operations and evacuate the work site. Notify SHSO and Project CIH for further direction.
	<0.01 f/cc at the downwind perimeter	Continue operations.
	>0.01 f/cc at the downwind perimeter	Increase dust suppression. Halt operations and evacuate the work site if levels do not drop below 0.01 f/cc. Notify SHSO and Project CIH for further direction.
RAM Total Dust Monitor	<5mg/m ³ in the work area or breathing zone	Continue operations with standard PPE for task.
	>5 mg/m ³ < 10 mg/m ³ in the work area or breathing zone	Increase dust suppression.
	>10 mg/m ³ in the work area or breathing zone	Increase dust suppression. Notify SHSO and Project CIH for further direction.
	<1 mg/m ³ at the downwind perimeter	Continue operations.
	>1 mg/m ³ at the downwind perimeter	Increase dust suppression. Halt operations and evacuate the work site if levels do not drop below 1 mg/m ³ . Notify SHSO and Project CIH for further direction.

Notes:

^(a) Readings are above background.

<	=	less than
>	=	greater than
APR	=	Air purifying respirator
f/cc	=	fibers per cc
HEPA	=	High-efficiency particulate air
mg/m ³	=	milligrams per cubic meter
PPE	=	Personal protective equipment
Project CIH	=	Project Certified Industrial Hygienist
SHSO	=	Site Health and Safety Officer

7.0 Site Control

7.1 Work Site Access And Security

Access to the Libby work site will be limited to one truck access and one personnel access point located at the URS trailer. All personnel are to check in and sign in at the trailer before accessing the work site. The access point will be posted with appropriate emergency numbers, OSHA poster, and warning, danger, caution, and notice signs, in accordance with 29 CFR 1910.145. Access to Libby work sites will be limited to authorized personnel. Only visitors who have received prior authorization from the URS PjM will be permitted to enter the work site.

The SHSO will be responsible for coordinating site access control and security during field activities. Authorized visitors will be advised of the potential hazards at the work site and will not be allowed to enter designated work zones unless they meet all required training/medical qualifications, have reviewed the HSP, and agree to adhere to its requirements. A visitor log will be maintained at the field trailer, and authorized visitors will be required to sign in before entering.

7.2 Work Zones

Work zones for building decontamination will be established in the ACandS Building Abatement/Decontamination HSP. An EZ, CRZ and Support Zone (SZ) will be established for those areas of the Libby work site with known or suspected contamination (See Work Plan, Figure 2-1). These include buildings undergoing decontamination, surface excavation areas, and contaminated material disposal areas.

The EZ represents an area of the work site where there is the greatest likelihood of exposure to physical or chemical hazards, and is generally limited to those areas where active work is being performed and there is a potential exposure to toxic or hazardous chemicals through inhalation, dermal/eye contact, and/or ingestion. The final size and shape of the EZ will be determined by the SHSO based on potential hazards, site-specific conditions, site limitations, and the nature of the work tasks to be performed. The SHSO will mark the EZ with appropriate high visibility fencing and asbestos warning signs during building decontamination, surface excavation, and contaminated material disposal tasks.

The CRZ will be established to provide a buffer zone where personnel can complete personal and equipment decontamination. The personnel decontamination trailer and equipment decontamination pad will be located in the CRZ upwind from the EZ boundary.

The SZ will constitute the clean safe area used for work site support, field trailer, sanitary facilities (portable toilets, potable water, Connex), and administrative activities. The SZ will be located in an area of the work site(s), upwind of the EZ and CRZ.

7.3 Buddy System

Personnel working within the EZ must use the "buddy system" at all times. Individuals within the EZ must be in visual or verbal contact (e.g., cellular phone or two-way radio) with another authorized field team member at the work site. The use of the "buddy system" will ensure field team members have the assistance of a partner able to observe symptoms of chemical exposure, illness, secure emergency assistance, notify management or response agencies in the event of an emergency, and provide other assistance that may be necessary. Enforcement of the buddy system will be the responsibility of the SHSO.

If approved by the SHSO, based on a review of work area conditions and operational activities, verbal or visual contact with another authorized field team member located at the URS field trailer but outside or away from the immediate work site may be sufficient to satisfy the "buddy system" requirement and permit routine activities within the EZ to be conducted by one individual.

7.4 Site Communications Plan

Radios will be with each work crew to communicate with the URS field trailer and each other. Telephones will be available at the URS site trailer to communicate with agencies and individuals outside of the work site throughout field activities. In addition, the SHSO will establish emergency signals during the initial site safety briefing prior to initial field activities. Examples include:

EMERGENCY, NEED HELP: grasping throat with hand;

LEAVE AREA IMMEDIATELY: grasping other employee's wrist;

OK, I UNDERSTAND: thumbs up;

NO, I DON'T UNDERSTAND: thumbs down.

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm; and

ALL CLEAR: two short blasts on air horn or alarm.

8.0 Decontamination

The extent of decontamination will depend primarily on the nature and extent of the contamination at a work site. Potential contact with hazardous substances or wastes (e.g., toxic, corrosive, reactive, etc.), require more extensive and thorough decontamination. The SHSO can modify procedures, as necessary, thereby adapting them to actual site conditions (e.g., changes in the nature and extent of contamination, PPE level, work tasks, etc.).

8.1 Personnel Decontamination

Personnel and equipment decontamination requirements for building abatement/decontamination are addressed in the Building Abatement/Decontamination Plan. Following decontamination at the building, ACandS and other building abatement/decontamination personnel will don rubber boot covers to walk through the surface excavation areas. No excavation work will occur while these personnel are exiting. Personnel will exit through the boot wash at the personnel decontamination trailer, washing and removing the rubber boot covers, and placing them on a drying rack.

A negative-pressure personnel decontamination trailer will be provided at the Export Plant site for personnel decontamination during surface excavation and contaminated material disposal tasks. The trailer will contain a clean area, showers, and dirty area. All personnel will be required to shower before leaving the site. A washer dryer will also be provided to launder cotton coveralls.

All disposable PPE and other equipment will be properly disposed of in plastic trash bags. Any reusable PPE (e.g., outer work gloves, hardhats, safety glasses, rubber boot covers, respirators) that has been on contact with hazardous substances will be decontaminated before being reused.

The following doffing and decontamination sequence will be followed, a flow chart of which will be posted in the decontamination trailer for employees to refer to:

1. Exit EZ through the boot wash outside the decontamination trailer;
2. At the boot wash, clean rubber boot covers using a stiff brush and water;
3. Enter the dirty side of the CRZ decontamination trailer;
4. Remove and hang rubber boot covers on rack provided;

5. Remove outer work gloves, hard hat, safety glasses, traffic safety vest, and steel-toed boots, wipe down with a damp cloth, and set aside on clean shelf or bench;
6. Remove polypropylene protective coveralls using the inside-out method and place in a lined trash can in the dirty area;
7. Wipe down the outside of the respirator and cartridges (if used), KEEP IT ON;
8. Remove inner cotton coveralls and place in lined container in dirty area for washing/drying on site;
9. Remove inner surgical gloves and dispose of in lined trash can or plastic bag;
10. Wearing respirator enter shower area carrying work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots and place on clean shelf or bench;
11. Shower then remove respirator by loosening straps and gently pulling the respirator over the top of the head leaving cartridges on during the workday but remove cartridges and dispose of in a lined container in the shower area at the end of the shift;
12. Carry respirator, work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots to the clean area;
13. Store work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots in lockers provided in the clean area;
14. Don street clothes;
15. At the end of the shift disassemble, clean, disinfect, and dry respirator in sink provided in clean area, place in clean plastic bag, and store in locker; and
16. Exit the decontamination trailer.

8.2 Equipment Decontamination

Heavy equipment, haul trucks, and other vehicles that have come into contact with potentially asbestos containing soil or vermiculite, will be decontaminated prior to leaving the Libby site. A bermed decontamination pad with a high-pressure washer and splash curtains to contain overspray will be provided in the CRZ at the Export Plant site and the Mine disposal site. Contaminants and dirt will accumulate within the undercarriage, tracks, sprockets, axles, and tires of equipment and trucks. Consequently, it will be necessary to scrape, broom clean, and pressure wash this equipment before it leaves the CRZ.

Reusable equipment and tools will be cleaned either by high pressure wash or by a series of washings using generous amounts of water and a non-phosphorous surfactant detergent. If reusable sampling equipment is used, it will be decontaminated using a decontamination solution and followed by a series of distilled water rinses.

8.3 Disposition of Project-Derived Wastes

All disposable PPE, equipment, plastic sheeting, and other items will be placed in plastic trash bags for disposal. Spent washwater, rinsewaters, and rinseates will be discharged through a filter into tanks for subsequent disposal in the sanitary sewer or used as dust suppressant as appropriate. The source will determine the ultimate disposition of these solutions in accordance with state and federal regulatory requirements (Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA]). Decontamination wastewater may be disposed of at the Export Plant, mine site disposal area, or into a sanitary sewer. The Construction Quality Control (CQC) Representative will ensure that wastes are properly containerized, secured, stored, and disposed.

9.0 Emergency Response Procedures (SMS 3, 49)

9.1 Introduction

In the event of any on-site emergencies at the Libby work sites, the URS SHSO will have the responsibility and authority for coordinating emergency response activities until proper authorities arrive and assume control. All URS and subcontractor personnel will follow the HSP emergency procedures .

In the event of an accident or incident, the SHSO will notify the PjM and the Project CIH as soon as possible (see SMS 49). The SHSO will determine the need to evacuate field personnel off site to a safe place of refuge, and notify the appropriate emergency response agencies. Specifically, spills or fires resulting from the mishandling of petroleum products or fuels, and personal injury/illness resulting from exposure to physical hazards are the emergencies most likely to be encountered at the Libby site. The local fire department and ambulance service will be best suited to handle these emergencies and are located within a reasonable distance to ensure adequate response time. The emergency response procedures presented in this section have been prepared to conform to OSHA standards as specified in 29 CFR 1910.138 as permitted by OSHA 29 CFR 1910.120(I)(1)(ii).

9.2 Pre-Emergency Planning

Pre-emergency planning activities associated with the Libby project activities include the following:

- Meeting with the local emergency services and hospital personnel to ensure that proposed emergency response activities are compatible with existing emergency response procedures.
- Establishing and maintaining information at the URS field trailer for easy access in the event of an emergency. This information will include the following, and it will be the responsibility of the SHSO to ensure the information is available.
 - Copies of the HSP,
 - An inventory of chemical substances used on site, with corresponding MSDSs,
 - Emergency contacts (see Table B9-1),
 - Site personnel records regarding medical treatment concerns (MDSs), and
 - Log book identifying personnel present on the site each day.

The provisions of the emergency response/contingency plan and emergency response procedures will be included as part of the site-specific training. The response procedures, evacuation routes, types and locations of emergency equipment (fire extinguishers, emergency eye wash/drench shower, first aid kit, etc.) and spill response material (pads, absorbents, tools), emergency alerting/alarm signals, and safe refuge location(s) will be discussed by the SHSO during follow-up or daily safety briefings for specific Libby work sites.

9.3 Emergency Recognition And Prevention

9.3.1 Recognition

Emergency situations are generally recognizable by visual observation. An injury or illness will be considered an emergency if it requires treatment other than first aid (i.e., requires treatment by a physician or other medical professional). A fire, beyond the incipient (beginning) stage, that cannot be put out with a fire extinguisher will be considered an emergency. A chemical release or spill will be considered an emergency when it can affect unprotected on-site personnel, off-site workers, and the public. The type(s) of materials that could pose a public or environmental hazard if spilled include lubricating oils, hydraulic fluids, fuels, and waste waters.

9.3.2 Prevention

URS will prevent emergencies by observing and complying with the provisions and requirements of the HSP, observing good work practices, proper maintenance of work site(s), inspecting equipment prior to start-up and throughout capping activities, daily safety inspections of the work site and drums/containers, and the use of approved and labeled DOT drums/containers to store fuels or other hazardous materials.

9.4 Safe Distances and Places of Refuge

In the event that the work site must be evacuated, all personnel will immediately stop activities and report to a designated upwind muster point in the SZ. Upon reporting, personnel will remain there until directed otherwise by the SHSO. The SHSO or designee will take roll at this location, using the log book, to confirm the location of all field personnel.

9.5 Evacuation Routes and Procedures

An evacuation must be initiated whenever a fire/explosion or significant spill occurs or there is an imminent threat of such an occurrence, or when personnel show signs or symptoms of overexposure to potential site contaminants. In the event of an evacuation, personnel will proceed immediately to the upwind muster point in the SZ, unless doing so would further jeopardize the welfare of workers.

Evacuation procedures will be discussed daily prior to the initiation of any work at the site. Evacuation from the site depends on the location at which work is being performed. In general, the evacuation routes will be based on wind direction, which could change daily. It will be important for personnel to move crosswind until out of the path of smoke or vapors, to not evacuate in the same direction the wind is blowing, and to travel upwind to the predesignated muster point.

9.6 Decontamination Procedures/Emergency Medical Treatment

Decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. It will not be performed if it would further endanger the lives of workers through a delay in obtaining medical treatment, or from the potential hazards due to performing decontamination procedures at or near the site.

9.7 Emergency Alerting And Response Procedures

Because URS and subcontractor field personnel will be working in close proximity to each other, hand signals and voice commands will be sufficient to alert site personnel to an emergency. If necessary, the following hand signal communications will be used during activities at the site:

EMERGENCY, NEED HELP: grasping throat with hand.

LEAVE AREA IMMEDIATELY: grasping other employee's wrist.

OK, I UNDERSTAND: thumbs up.

NO, I DON'T UNDERSTAND: thumbs down.

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm.

ALL CLEAR: two short blasts on air horn or alarm.

9.8 Spills, Accidental Releases

9.8.1 Response Procedures

The materials likely to be used or stored at the Libby site in quantities that could present a potential hazard to field personnel or the environment if released or spilled include fuels (gasoline, diesel), lubricating oils, hydraulic fluids, magnesium chloride, and decontamination

wastewater. The following spill prevention measures and procedures will be implemented by the SHSO and site personnel in the event of a significant release or spill exceeding 25 gallons:

- Notify the SHSO and PjM immediately;
- Take immediate measures to control and contain the spill within the Libby site boundary, away from storm drains, drainage ditches, and water courses;
- Remove and keep unnecessary personnel away from the spill, and isolate and define the extent of the spill or hazardous area;
- If there are vapors, gases, fumes, particulates, dust, or other airborne hazardous substances present, ensure that personnel remain upwind, and keep them out of low-lying areas where the gases or vapors can concentrate; and
- Prohibit the use of flames, sparks, smoking, or other sources of ignition in the area of the spill, and keep combustibles away from the spilled material.

For small dry spills, the SHSO or designee will shovel the contaminated material into dry containers, cover, and label the container. For small liquid spills, the SHSO or designee will apply absorbent material or pads to the spill and place the absorbent in a labeled container. All reusable tools and equipment used in any cleanup activity must be decontaminated before reuse. Contaminated disposable equipment or materials (sorbents, rags, dirt, etc.) must be discarded in appropriately labeled containers.

The SHSO must file a written report on the Accident/Incident Report form and submit the form to the PjM and Project CIH within 24 hours of the time of a spill. Gasoline or diesel spills greater than 25 gallons from an aboveground storage tank (any amount from an underground storage tank) must be reported to the Montana Department of Environmental Quality (see Table B9-1).

9.8.2 Spill Prevention Measures

The SHSO, in concert with subcontractors, will implement or ensure that the following spill prevention measures are implemented to minimize the potential for spills of fuels, fluids, oils, or other hazardous materials:

- All drums/containers brought on site for storing or containing fuels, fluids, oils, or hazardous materials or wastes must meet DOT standards for their intended uses. The SHSO will inspect drums or containers prior to use, and any personnel using or transporting such containers onto the Libby site will be responsible for visually inspecting them prior their use.

- All drums/containers will be properly labeled as to their contents. Unlabeled containers will be assumed to contain hazardous materials, until confirmed otherwise, and will be subject to appropriate handling.
- The SHSO and PjM will work with subcontractors to minimize the number of containers used and transported on site.
- Personnel responsible for drum/container handling activities must be informed of the potential hazards presented by the operations and the importance of spill prevention during site-specific training.
- Damaged or weakened drums/containers that could rupture or leak must be overpacked, or the contents transferred into another DOT-approved or appropriate container.
- Stationary fuel storage tanks to be diked.
- The SHSO will conduct regular inspections of operational areas to identify existing or potential spill or release conditions and ensure that appropriate corrective actions are implemented.

9.9 Fires

In the event of an explosion, large fire, or small fire that cannot be extinguished by the fire extinguishers available at the Libby work site, the SHSO will notify the local fire department immediately and evacuate all unnecessary personnel from the work site to a safe upwind refuge area. The SHSO or senior on-site URS field member will work with and advise the fire Incident Commander of the location, nature, and identification of fuels, or hazardous materials stored on site.

For small fires (fires that can be extinguished with a 20-pound ABC fire extinguisher), the SHSO will evacuate all unnecessary personnel from the immediate area threatened by the fire and attempt to extinguish the fire using the on-site fire extinguishers or by smothering the fire. The SHSO will then notify, as needed, local emergency response assistance (fire department, ambulance, emergency medical team).

9.10 Work Site Injury Or Illness

The SHSO has the responsibility and authority to coordinate emergency medical response activities until proper emergency medical services (EMS) arrive at the work site. In the event of a minor injury, routine first aid procedures will be used immediately, particularly if blood is present. Medical follow-up exams may be required, depending on the nature of the injury or exposure. First aid kits will be maintained at Libby work sites for treating minor injuries. In the event of a serious injury or illness, field personnel will immediately notify the EMS by dialing

911. The SHSO and one other member of the field team will have current certifications in first aid or CPR and will, if necessary, be able to provide emergency care before EMS arrives. Workers with suspected back or neck injuries are not to be moved. If there is evidence of serious trauma or unknown chemical exposure, the employee should be stabilized while awaiting EMS. The SHSO will determine whether there is sufficient contamination to warrant removal of garments and/or spraying the victim with water to remove the contamination.

In the event of respiratory exposure, dermal or eye contact, or ingestion of a potentially toxic substance, the following procedures will be followed.

Respiratory Exposure (Inhalation)—Move to fresh air immediately. Any loss of consciousness or exposure to elevated levels of toxic substances, even if the individual appears to have fully recovered, requires immediate treatment and/or surveillance by a qualified physician.

Dermal Contact—Wash/rinse affected area for at least 15 minutes. An emergency drench system will be available at the decontamination trailer. If clothing is contaminated and the extent of the injuries permit, remove the clothing and flood the skin with potable water. If necessary, the potable water supply provided at the site can also be used to immediately flush skin or eyes. Ensure that the worker is immediately transported to the local hospital

Eye Contact—Flush eye(s) with emergency eyewash bottles in vehicles. Transport to decontamination trailer and flush continuously for 15 minutes using portable emergency eyewash, then transport worker to the local hospital. Follow-up treatment or examination by a qualified physician is required.

Ingestion—Immediately transport to the local hospital. If the victim cannot be immediately transported to the emergency facility, call the EMS at 911. It may also be necessary to call the Regional Poison Control Center for instructions while waiting for EMS.

Emergency telephone numbers are provided in Table B9-1.

9.11 PPE and Emergency Equipment

Emergency response equipment and PPE will be maintained at the URS field trailer and decontamination trailer. The equipment will include at a minimum:

- Telephone or appropriate communication network to allow immediate contact with the fire department, ambulance, and URS supervisory personnel;
- Two 20-pound ABC fire extinguishers;
- Spill kit (sorbent materials, pads, booms, pillows and other materials and equipment appropriate to neutralize or contain the types of chemicals/substances present at the work site);
- First aid kit;
- Emergency eye wash/drench station, and/or a potable water source capable of providing sufficient water to flush exposed skin or eye(s) for a period of 15 minutes; and
- Extra sets of PPE consisting of rubber aprons; chemical resistant gloves and coveralls; rubber steel-toed boots, half-face respirator with combination organic vapor/P100 (HEPA) cartridges; safety glasses; hard hat with face shield; and ear plugs.

9.12 Emergency Contacts

Table B9-1 provides a list of emergency telephone numbers and contacts. This list will be conspicuously posted in the URS field trailer and at work sites near the communication system, making it available to all field personnel. The list will be updated and be revised as necessary to ensure the correct telephone numbers for all appropriate emergency assistance personnel, URS, and local resources are always readily available to field personnel.

9.13 Recordkeeping

In addition to OSHA recordkeeping requirements contained in the Project Safety and Health Manual, URS will maintain a file of H&S-related events occurring at Libby work sites. Any exposure or potential exposure is to be recorded, as well as accidents or incidents that require the filing of an Accident/Incident Report (e.g., injuries, illnesses, accidental damage to property, or "near miss" occurrences that could have resulted in personal injury). A copy of an Accident/Incident Report form may be found in SMS 49.

URS will maintain a Project Safety and Health Manual for Libby project activities. The manual will include this HSP, all training logs, medical clearances, respirator fit tests, daily safety logs, monitoring logs, inspections, and accident/incident reports covering the implementation of the HSP, and MSDSs. A seven-day progress report will be submitted and will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work. A Final Project Report will include a summary of safety and health items from the Progress Reports.

Table B9-1. Emergency Telephone Numbers

Libby Fire Department	911
Libby Police	911
Libby Ambulance	911
Hospital: St. Johns Lutheran 350 Louisiana Avenue Libby, Montana	(406) 293-7761
Montana DEQ 2209 Phoenix Ave., Helena, Montana	(406) 444-2544

10.0 HSP Approval, Review and Documentation

URS and subcontractor field personnel will review the HSP during the initial Libby project briefing. The field team member(s) must sign the HSP Acknowledgment of Understanding form. The forms will be maintained as part of the project H&S file.

The SHSO is responsible for informing all site personnel of any changes to the HSP and describing the specific details of the changes during safety meetings.

Field personnel will be informed in writing of the results of any monitoring or sampling conducted during remedial and other field activities, or any other information indicating possible work site exposure(s). Any data or other documentation indicating possible employee exposure to chemical hazards exceeding PELs will be forwarded to the employee and, at the employee's request, to his/her personal physician.

11.0 References

- American Conference of Governmental Industrial Hygienists (ACGIH). 1999TLVs[®] and BEIs[®], Threshold Limit Values for Chemical Substances and Physical Agents. Cincinnati OH. 1999.
- National Institute for Occupational Safety and Health (NIOSH). NIOSH Pocket Guide to Chemical Hazards. U.S. Department of Health and Human Services Publication No. 97-140. Cincinnati OH. 1997.
- NIOSH, OSHA, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA). Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. U.S. Department of Health and Human Services (DHHS) Publication 85-115. DHHS Public Health Service, Centers for Disease Control, NIOSH, Washington D.C. 1985.
- URS Consultants, Inc. Health and Safety Program and Management System Manual. Sacramento, CA. 1999.
- U.S. Army Corps of Engineers (COE). Safety and Health Requirements Manual. EM 385-1-1. Washington D.C. 1996.
- U. S. Environmental Protection Agency (EPA). Standard Operating Safety Guides. Emergency Response Division, Environmental Response Branch, Office of Emergency and Remedial Response. Washington D.C. 1988.

ATTACHMENT B1
ACandS HEALTH AND SAFETY PLAN

**BUILDING DECONTAMINATION HEALTH AND SAFETY PLAN
EXPORT PLANT REMOVAL ACTION
LIBBY, MONTANA**

PREPARED BY ACand S, Inc.

1.0 GENERAL INFORMATION

This task specific Health and Safety Plan (HSP) provides safety-related information and requirement specific to the tasks and work locations described. Significant changes to this HSP will be approved by the URS Project CIH and documented as a revised task-specific HSP. AC and S Inc. will comply with all provisions of the URS HSP for Removal and/or Abatement of Asbestos and Vermiculite at the Libby Asbestos Site Export Plant, Montana.

Project Name: Export Plant Removal Action

Task Name: Building Abatement/Decontamination

Performing Organization: ACandS, Inc.

Duration of Field Activities: Approximately 15 weeks

2.0 SCOPE OF WORK

Abatement of asbestos containing materials from the Pole Barn, Old Vermiculite Storage Warehouse, Large Lumber Warehouse, Planer Shop, and the Small Shed and decontamination of their contents. These structures are located at the Export Plant in Libby, Montana. See the URS Building Abatement/Decontamination Plan for details.

3.0 PERSONNEL AND ASSIGNED RESPONSIBILITIES

Project Manager: Joe Wood

Site Superintendent: Charles Shaw

General Foreman: Jose Ibarra

Site Safety Officer and Competent Person: Charles Shaw

Regional Safety Manager: Mark Kennedy

4.0 POTENTIAL HAZARDS AND CONTROL MEASURES

The potential health and safety hazards and the control measures are summarized below.
The potential for encountering these hazards are ranked high, medium or low.

<i>Category</i>	<i>Hazard potential</i>	<i>Description of potential hazards</i>	<i>Control Measure</i>
General	High	Slips, Trips and Falls	Stage office and storage trailers on level ground. Always practice good housekeeping. Install and maintain proper stairways. Identify problem areas and repair or clearly mark it.
	High	Lifting/Back Injury	Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots.
	High	Heavy Equipment	Inspect work and travel area to verify that it will support heavy equipment traffic. Obey all traffic signs and controls. Follow only established routes. Be alert to heavy equipment at all times. Never approach equipment from the rear. Wear traffic safety vest. Never ride on the outside of equipment.
	High	Traffic/Vehicles	Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not exceed posted speed limits. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests.
	High	Hand and Power Tools	All hand and power tools will be kept in good repair. Inspect tools before using. Wear gloves and safety glasses at while operating tools. GFCI on all electrical cords. 3-pronged grounded plug or double-insulated tools. Machine guards in place. Training in proper handling.
	High	Electrical shock or electrocution	Temporary power installed per Code by qualified electrician. Three-foot clearance around electrical boxes. GFCIs on all temporary cords. Grounding of electrical circuits. Check electrical cords for broken insulation

Category	Hazard potential	Description of potential hazards	Control Measure
			and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment; 3-pronged grounded plug or double-insulated tools Unplug (turn off power) or disconnect power source when servicing equipment and lock out/tag out.
Noise	Medium	Heavy equipment Pressure Washers Pumps Compressors	Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within 3' to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors.
Utilities	High	Overhead Electrical Lines	Conduct a toolbox safety meeting prior to operating boom lifts near overhead power lines. Radio communication between the boom lift operator and ground watch person. 10' minimum clearance from power lines.
Chemical	High	Tremolite	Never handle material when it is dry. Always wear proper PPE when handling asbestos containing material including respirators and full body disposable coveralls. Use the appropriate engineering controls for the task at hand. Always wet the ACM with amended water.
Weather	Medium	Temperature Extremes	Follow the procedures outlined in the ACandS safety procedures manual section 2.3.
	Low	Catastrophic Weather	Terminate outdoor activities if high winds, heavy rains or electrical storms occur. Remain alert and know where the closest shelters are. Tie down all trailers and temporary structures.
Biological	Medium Low Low Medium	Insect and Spider Bites Snake Bite Rabid Animal Animal Feces	Identify personnel with allergies and make necessary accommodations. Avoid letting plants come in contact with skin. Educate personnel on the types of spiders, snakes and insects that are present in the area. Inspect new work areas for animals, insects and spiders. Employ dust suppression when around animal feces.

<i>Category</i>	<i>Hazard potential</i>	<i>Description of potential hazards</i>	<i>Control Measure</i>
Fire	High Medium	Working on Wood Structures Equipment Fuels	Fire extinguisher will be readily available during all fire risk activities. All containers that will be used for fuel storage will be OSHA approved and stored in a designated area. No cigarette or open flame near refueling area will be allowed. Implement and rehearse the emergency evacuation plan.
Bodily Injury	High	Burns. Lacerations, contusions, eye injury during decontamination with high pressure washers Mechanical/Electrical Hazards with Planer	Wear proper PPE (hardhat, faceshields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area. Establish specific lockout/tagout procedures for planer with operator prior to decontamination. Train personnel involved in planer decontamination on safe work practices, including lockout/tagout. Turn off power or disconnect power source prior to decontamination and lockout/tagout. Test planer prior to decontamination to ensure that all residual energy has been dissipated. Keep blade and pinch point guards in place during decontamination. Block any raised blades to prevent their dropping during decontamination.
Falls	High	Working from Man Lift	Only trained qualified personnel will operate boom man lifts. Review manufactures operation instructions with operators prior to use. Train and certify personnel in basket in personal fall arrest systems. Keep hands inside of basket during lift. Personnel will be equipped with fall arrest equipment. Inspect lift daily. The operator will walk the route the lift will take prior to performing the task. 10' minimum clearance from power lines.
	High	Ladders	Inspect ladder prior to each use. Use fiberglass ladders only. 4:1 vertical to horizontal angle.

<i>Category</i>	<i>Hazard potential</i>	<i>Description of potential hazards</i>	<i>Control Measure</i>
	High	Scaffolding	<p>Extend ladder 3' beyond landing. Place ladder on a firm base. Tie or block or provide a spotter to secure ladder. Maintain three-point contact on ladder at all times.</p> <p>Scaffolding erected by qualified personnel under direction of a Competent Person. Scaffolding must support four times intended load. Standard guardrail with toeboards installed. Competent Person conducts daily inspection of scaffolding. Maintain surface of planking clear of debris. Always wear a safety harness with lanyard when working higher than ten feet from the ground.</p>

5.0 WRITTEN SAFETY PROCEDURES AND PROGRAMS

The following Procedures and Programs that are referenced below can be found in the ACandS Safety and Health Procedures Manual under the sections indicated.

Procedure or Program	Applicable Section
Hazard Communication	Section 1.5
Aerial Lifts	Section 4.3
Material Handling	Section 4.1
Electrical Safety	Section 7.1
Lockout & Tagout	Section 7.2
Fall Protection	Section 5.2
Fire Prevention	Section 9.4
Hand & Power Tools	Section 6.1
Heat Stress	Section 2.3
Personal Protective Equipment	Section 3.1

Portable Ladders

Section 5.1

Scaffolding

Section 5.3

6.0 PERSONAL PROTECTIVE EQUIPMENT

The following Table indicates the appropriate Personal Protective Equipment to be used for the given activity.

Activity	Head/Face	Feet	Hands	Respiratory	Clothing	Fall Fall Protection
General Labor	Hard Hat & Safety Glasses	Leather Work Boots	Cotton or Leather Gloves as Needed	None	None	Safety Harness & Lanyard As Needed
Field Supervision	Hard Hat & Safety Glasses	Leather Work Boots	Cotton or Leather Gloves as Needed	None	None	Safety Harness & Lanyard As Needed
Decontamination of Equipment	Hardhat, faceshields, Ear plugs	Steel Toed Rubber Boots	Nitrile Gloves or Latex Gloves under Cotton Gloves	North Half Face Respirator With HEPA Cartridge	Disposable Full Body Coverall	Safety Harness & Lanyard As Needed
Abatement Worker Inside Containment	Hard Hat & Safety Glasses	Steel Toed Rubber Boots	Nitrile Gloves or Latex Gloves under Cotton Gloves	North Half Face Respirator With HEPA Cartridge or MSA Full-face PAPR With HEPA Cartridge	Disposable Full Body Coverall	Safety Harness & Lanyard As Needed

7.0 TRAINING AND MEDICAL MONITORING REQUIREMENTS

7.1 Training Requirements

Asbestos Abatement Workers: All workers will be accredited as Abatement Workers as required by the Asbestos Model Accreditation Plan, 40 CFR 763 Appendix C to Subpart E. All Asbestos Abatement Workers will be certified and

accredited as Asbestos Abatement Workers as required by the State of Montana Environmental Regulations.

Asbestos Abatement Contractor/Supervisor: The on-site superintendent will be accredited as an Asbestos Abatement Contractor/Supervisor as required by the Asbestos Model Accreditation Plan, 40 CFR 763 Appendix C to Subpart E. The on-site superintendent will be certified and accredited as an Asbestos Abatement Supervisor as required by the State of Montana Environmental Regulations.

Other Training: All personnel involved in the building decontamination project will be trained in accordance with OSHA HAZWOPER requirements (29 CFR 1910.120[e]). They will also undergo Site Specific Safety Orientation and Site Specific Hazardous Communication Training. All personnel will have been trained in the AC and S Inc. Safety and Health Procedures in Section 5.0 of this HSP.

AC and S Inc. personnel expected to wear respiratory protection will have had a respirator fit test within the previous six months.

7.2 Medical Monitoring

In compliance with the OSHA medical surveillance requirements in 29 CFR 1910.120[f], each person entering a designated work zone will be required to undergo an annual physical with an emphasis on pulmonary function. A Physicians Written Opinion will be on file at the work site with the following information:

- Whether the person has any detected medical condition that would place the person at an increased risk of material health impairment from exposure to asbestos.
- Any recommended limitation on the person or on the use of personal protective equipment such as respirators.
- Statement that the person has been informed by the physician of the results of the examination and any medical conditions that may result from exposure to asbestos.
- Statement that person is able to wear and use the type of respiratory protection proposed for the project.

8.0 PERSONNEL AIR MONITORING

Personal air monitoring as required to meet OSHA requirements in 29 CFR 1910.120[h] for determination of a full shift Time Weighted Average and Excursion Limit fiber counts for the type of respiratory protection provided will be performed by Koch Environemtnal Health Inc. and the sampling protocol will be provided by them.

9.0 DECONTAMINATION

Personnel and equipment decontamination procedures are detailed in the URS Building Abatement/Decontamination Plan. Following decontamination at the building, AC&S and other building abatement/ decontamination personnel will don rubber boot covers to walk through the surface excavation areas. No excavation work will occur while these personnel are exiting. Personnel will exit through the boot wash at the personnel decontamination trailer, washing and removing the rubber boot covers, and placing them on a drying rack.

10.0 EMERGENCY NOTIFICATION PROCEDURES

The Emergency Notification Procedures outlined in the URS Health and Safety Plan will be followed.

ATTACHMENT B2

AIR MONITORING/INDUSTRIAL HYGIENE PROJECT PLAN

1.0 Introduction

The following describes the proposed air monitoring/industrial hygiene strategies to be provided by Koch Environmental Health, Inc. (KEH) for URS in support of asbestos abatement and remedial efforts at the Export Plant Site in Libby, MT. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of the project. This plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated through URS, will be implemented only after approval by URS Project CIH and the EPA. KEH will support URS in achieving the objective of the project in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements for asbestos control. This plan will apply to asbestos abatement/decontamination in all work areas at the Export Plant site, although changes or alterations may be made in some work areas as conditions deem them necessary. Target work areas will include the following:

- Pole Barn;
- Old Vermiculite Storage Warehouse;
- Large Lumber Warehouse;
- Planer Shop (operating);
- Small Shed;
- Demo'd Shed;
- Surface Excavation, general; and
- Sprung Building (if necessary).

All work will be conducted under the direct supervision of a staff Certified Industrial Hygienist (CIH) in accordance with applicable project and regulatory requirements with regards to asbestos control. KEH Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of each project. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA (ASHERA) and the State of Montana with respect to Asbestos Professionals.

2.0 Air Monitoring Plan

All air monitoring for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Project Manager will coordinate all sampling activities with the designated URS Representative to ensure that all affected abatement areas are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with EPA and State of Montana requirements regarding asbestos control. The air sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) ISO 10312 methodologies in multiple areas.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each work area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rules. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each work area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they related to asbestos remediation.

TEM ISO 10312 analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM ISO 10312 sampling will be used for asbestos determination in airborne samples as necessary and will be used for perimeter background, perimeter dailies, and building clearance sampling. In some cases, both PCM and TEM samples may be collected simultaneously (i.e. side-by-side) for use in determining effective fiber control strategies.

Background perimeter air samples will be collected for TEM ISO 10312 analysis prior to intrusive work to determine ambient airborne contaminant levels. Perimeter air samples will be collected on two separate days prior to intrusive work at the site at six locations. Perimeter samples will be collected during each day of asbestos abatement operations at the same locations as background samples. Figure B-1 shows proposed locations for background and perimeter sampling. A fixed final location will be field established away from obstructions and documented. PCM air samples will be collected in clean rooms, work areas, and at the exhaust of negative air machines during asbestos abatement operations. Final visual inspections and clearance air monitoring via TEM ISO 10312 will be conducted in each building upon

Figure B-1. Proposed Locations for Background and Perimeter Air Monitoring

completion of asbestos abatement and final cleaning procedures. Analysis of all samples collected will be submitted to the designated URS on-site laboratory or shipped off site for analysis according to appropriate turnaround times for each type of analysis.

2.1 Sample Collection

Phase Contrast Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm². Transmission Electron Microscopy (TEM) ISO 10312 samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm². All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos abatement is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g. PCM, TEM) of samples collected in and around each work area. Any changes to sampling strategies will be coordinated through the designated URS representative and will only be implemented to add value to the generation of data and add efficiency to the air monitoring program.

Air samples will be collected at flow rates between 2.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. KEH Representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument on-site at all times during this project and will maintain calibration records on site for review by the URS representative.

Portions of samples not destroyed during analysis will be archived.

2.2 Laboratory Analysis

To ensure state-of-the-art quality control, all analysis will be conducted by independent laboratories provided by URS that are accredited by the American Industrial Hygiene Association (AIHA) and/or the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of PCM and TEM air samples. Selected samples will be analyzed on-site by an independent laboratory to ensure rapid transmission of data and assist in developing dynamic asbestos control strategies. Results of all air samples will be posted in or around the affected

work area within 24 hours for (PCM) or upon laboratory forwarding of analysis for TEM ISO 10312.

2.3 Clearance Sampling

Clearance samples will be collected after an acceptable status visual inspection has been performed by a qualified Industrial Hygienist (IH) in each applicable work area. Clearance samples will be collected for TEM ISO 10312 analysis in accordance with project work requirements. The numbers and locations of clearance samples will be dependent upon the size and configuration of the work area. All clearance samples will be collected in an aggressive manner utilizing at a minimum a 1 horsepower leaf blower and additional support via area box fans dependent upon the size of each work area. Results of all final clearance samples will be reported immediately upon completion of analysis to the designated URS representative and will be posted for review in accordance with project requirements.

2.4 CIH Review and Sign-Off

Upon completion of each project, a final technical report will be generated by KEH that describes the project activities, air sample results, and visual inspection data. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our clients are provided reliable technical data. All projects conducted by KEH for URS will be performed under the supervision of a staff CIH. All technical reports for this projects will be developed, reviewed, and signed by a staff CIH at no additional cost to the customer.

2.5 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. Our inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support equipment, including calibrated rotameters, primary flow standards, a variety of 1 HP leaf blowers, stationary box fans, and associated electrical and personal protective equipment. All of our rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e. battery) pumps will be maintained on site to support air monitoring requirements for the project.

KEH utilizes Thomas brand electric high-volume sampling pumps capable of running at 1-15 liters per minute continuously for multiple shifts. KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do

not allow for electric pumps. Multiple battery pump and battery packs will be maintained on site to adequately monitor the project on a daily basis and allow for charge-discharge cycles, pump failures, and backup capabilities. Our inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling a variety of contaminants. Our excellent working relationships with nationwide safety suppliers and laboratories enable us to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

APPENDIX C

BUILDING DECONTAMINATION FEASIBILITY PLAN

1.0 Introduction

This Plan has been prepared as part of the Export Plant Removal Action Scope of Work included in the EPA Unilateral Administrative Order for OU-1. The purpose of this Plan is to support Grace's proposed building decontamination efforts pending at the Export Plant. Grace considered two alternatives for the required removal action. Alternative number one was to clean AIM and demolish the buildings on the property. Alternative number two was to clean AIM and return the buildings to their original use.

2.0 Site Layout

There are currently five buildings on the property that are affected by the planned abatement activities:

- Pole Barn (7,920 squared feet) - used for storage of lumber;
- Old Vermiculite Warehouse (4,000 square feet) - Used for storage;
- Large Lumber Warehouse (3,000 square feet) - garage and scale;
- Planer Shop (5,600 square feet) - office and operational lumber planing; and
- Small Shed (1,800 square feet) - storage of miscellaneous items.

Millwork West Company is a tenant on the property and runs the lumber planing and building materials supply retail operation. The company receives rough cut lumber which is then finished and shipped by rail to other retail locations. Millwork West also sells building materials directly to retail customers from Libby. A second tenant stores materials in the small shed at the site.

3.0 Description of Alternatives

Alternative No. 1 - Clean and Demolish

Under this alternative, Grace would inventory and appraise all equipment and materials on-site. Equipment and materials would be identified as to be disposed or to be cleaned and salvaged. Gross decontamination procedures would then be conducted on the building interiors, including the removal of all visible vermiculite. Following the decontamination, the buildings

would be demolished using standard demolition techniques. The building debris would then be transported to a selected disposal facility.

It was assumed that under this alternative, replacement structures would be designed and constructed by Grace so that materials and equipment owned by the tenant(s) could be returned to the property and business activities could resume. Care would be taken during any foundation replacement to not generate additional sources.

Alternative No. 2 - Clean, Test and Leave Buildings in Place

Under this alternative, Grace would use approved decontamination procedures to clean materials and equipment to be salvaged from within the buildings and remove them to temporary storage. The non-salvageable equipment and materials would be removed and disposed of in an approved site as regulated asbestos containing material. Once the buildings were emptied, building abatement procedures including vacuuming, wet wiping, and power washing would be used to clean the building interiors. Following this cleaning procedure, the building interiors would be "sealed" using a spray-on encapsulant. Finally, each of the buildings would be certified to be clean using visual inspections and AHERA aggressive air sampling protocols. Once certification is complete, materials and supplies would be returned to their original locations and the buildings put back to their original use.

4.0 Alternative Evaluation

For this expedited evaluation, four primary criteria were considered with respect to the selection of the cleanup action:

- Protection of human health;
- Implementability;
- Regulatory compliance; and
- Cost effectiveness.

Protection of Human Health

Both alternatives 1 and 2 are considered to be equally protective of human health. Alternative 1 would provide for new structures on the property that by definition would be considered free of AIM. Alternative 2 would involve AIM abatement following strict regulatory

protocols for cleaning, encapsulation, and aggressive testing as specified in 29 CFR 1919.1001. Such procedures are standard practice nationally and are accepted techniques for meeting human health-based testing criteria. Thus, there is no technical or health related reason for preferring either alternative under this criteria.

Implementability

Alternative No. 1 would involve displacing the existing tenant business for an extended period of time while the buildings are demolished and new structures are designed and constructed. Additional worker safety concerns would also need to be addressed due to the equipment and procedures used for demolishing the buildings. In addition, there would be a greater risk of generating wind-blown particulates due to the demolition activities.

Alternative No. 2 would provide for a means of keeping the tenant lumber planing business in operation while the abatement is occurring. Furthermore, the tenant(s) would not be displaced for a significant length of time since materials, equipment and inventory will be put back in the existing buildings once the cleanup is complete. Thus, it is likely that the tenant would be subject less potential "loss of business" under this alternative, than under Alternative 1.

Alternative No. 2 is the preferred alternative under this criteria.

Regulatory Compliance

Both alternatives would be equally compliant with federal and state regulations related to building abatement. EPA's long standing regulations regarding asbestos abatement in buildings are clear. Demolition is rarely necessary. In fact, asbestos need not necessarily be removed from buildings at all, since today's technology allows the asbestos to be managed in place. Under the Asbestos School Hazard Abatement Reauthorization Act (ASHARA), management of asbestos in place is often preferable from an exposure standpoint.

Alternative No. 2 would follow the regulations put forth in 29 CFR 1910.1001, as described in the Building Decontamination Plan. Procedures will involve building containment, maintaining negative air pressure, using HEPA vacuums, power washing, wet wiping, encapsulation, aggressive air sampling, and TEM ISO 10312 analyses. In some respects, the combination of all these procedures go above and beyond what is generally required for building abatement.

Cost Effectiveness

Alternative No. 2 is a more cost effective alternative since it does not involve the demolition, design, and construction of new structures. Furthermore, it is expected that the economic impacts on the existing tenant business would be less under Alternative 2.

Based on this evaluation, Grace has selected Alternative No. 2, building cleaning, testing, and reuse, as the preferred removal action under the UAO. Appendix D presents details of the building abatement and decontamination procedures that will be used to implement this alternative.

APPENDIX D

BUILDING ABATEMENT/DECONTAMINATION PLAN

1.0 General

The following Decontamination Plan will be implemented for the decontamination of the Pole Barn, the Old Vermiculite Storage Warehouse, the Large Lumber Warehouse, the Planer Shop, and the Small Shed. While the buildings vary in size and composition, the same procedures outlined below will apply to all of the buildings.

2.0 Decontamination Facilities

URS will construct three temporary decontamination (decon) facilities per building, to include a male personnel decon, a female personnel decon, and a material/equipment decon. Under this provision, the personnel decon units will be the only means of worker ingress and egress to the work area. All material and equipment will exit the work area through the material decon unit. While the dimensions will vary in each building, the basic layout described in this plan will be used on all of the buildings, and all decon units will be contiguous to the work area.

2.1 Personnel Decontamination Unit

The Personnel Decon Unit will consist of a serial arrangement of five connected rooms designated the Clean Room, the Air Lock, the Shower Room, the Air Lock, and the Equipment Room. The floor-to-ceiling height will not be less than 6 feet, 6 inches. Access to each of these five connected rooms will be protected by constructing overlapping layers of 6-mil polyethylene (poly) plastic sheeting to form a triple flap to each room. Construction materials will include two-by-four lumber, plywood, metal shower pan, and opaque poly sheeting.

2.1.1 Clean Room

The Clean Room will be visually separated from the rest of the building for the purpose of allowing personnel to change into protective clothing. The Clean Room will also act as a storeroom for employee's street clothing, respirators, towels, protective clothing, etc., and as an information center for posting required documents and emergency information.

To prevent fiber migration from the outside area into the Clean Room, URS will create positive pressure in the clean room by exhausting a HEPA-equipped negative air machine into the room. The filtered air entering the room will also become the makeup air for the work area.

2.1.2 Air Locks

There will be Air Locks installed on both sides of the shower. The purpose of these two rooms are to provide an additional measure of protection, preventing asbestos fibers from escaping the contaminated areas of the decon and entering the clean areas.

2.1.3 Shower Room

URS will provide a completely water-tight operational shower to be used for transit by cleanly dressed workers heading for the work area from the Clean Room and for showering workers heading out of the work area after undressing in the Equipment Room. The Shower Room will be constructed in a "pass through" design, a configuration that will require the worker to pass from the contaminated Equipment Room, through the shower, and into the Clean Room without stepping back into an asbestos impacted material (AIM) area. Each male decon unit will be equipped with three showerheads, and each female decon unit will be equipped with one showerhead.

For sanitary reasons, a free-draining floor will be constructed on top of the shower pan, and the showerheads will be mounted so as to cause the water running down the wall to drip into the shower pan. Each showerhead will be equipped with both hot and cold, which can be adjusted by the person taking the shower. Soap and towels will always be present. The Shower Room will be cleaned and disinfected at the end of each shift.

Each shower pan will be equipped with a wastewater filtering system. Wastewater generated on this project will be filtered down to five microns before being discharged into a sanitary sewer.

2.1.4 Equipment Room

This is a change and transit room for personnel who have had access to the AIM work area. All work equipment, footwear and additional contaminated work clothing will be left in this room. The Equipment Room will have two exits, one leading to the AIM work area and the other leading to the overlapping poly flaps leading into the Air Lock located between the Shower Room and the Equipment Room.

2.1.5 Air Flow Through the Decon

The positive pressure in the Clean Room and the negative pressure in the work area will maintain a constant inward flow of air from the Clean Room through the Air Locks and Shower Room, and into the Equipment Room.

2.2 Material Decontamination Unit

The Material Decon Unit will consist of a serial arrangement of five connected rooms, designated the Clean Room, the Air Lock, the Cleaning Room, the Air Lock and the Dirty Room. The floor-to-ceiling height will not be less than 6 feet, 6 inches. Each of these five connected rooms will be separated by constructing overlapping layers of 6-mil polyethylene (poly) plastic sheeting to form a triple flap to each room. Construction materials will include two-by-four lumber, plywood, metal shower pan, and opaque poly sheeting.

2.2.1 Material Decontamination Area

The Material Decon Unit will be constructed at a location where it is most practical to decontaminate the materials and remove it from the building. As with the personnel decon, positive pressure will be created in the clean room by exhausting a HEPA-equipped negative air machine into the Clean Room.

The Cleaning Room will be equipped with HEPA vacuums, amended water, towels, miscellaneous hand tools, and a shower pan to capture any wastewater generated in the material decontamination process. After all material has been decontaminated and removed from the decon unit, the decon unit will be used as a waste load out facility.

3.0 Negative Pressure Enclosure System

3.1 Disable Ventilating Systems

All ventilating systems or any other system bringing air into the work area will be disabled. Disconnecting power wires and/or removing circuit breakers or fuses to prevent accidental premature restarting of the equipment will accomplish this.

3.2 Lockout Power to the Work Area

Switching off all breakers or removing all fuses that service the work area will lock out all power to the work area. The circuits will be labeled "DANGER circuit being work on." The panel will then be locked, and all keys will be under the control of the project superintendent. A "tick-tester" will be available at all times in the work area to verify that all wires have been de-energized.

3.3 Install Temporary Electrical Service

URS will provide a weatherproof, grounded temporary electrical service and distribution system panel. The panel will consist of a three-phase, 100-amp load center equipped with sixteen 110-volt single-phase GFCI receptacles, one 220-volt single-phase receptacle, and one 240-volt three-phase receptacle. This panel has sufficient capacity to power the negative air machines, temporary lighting, airless sprayers, power washer, water filtration system, manometer, water heater, and the necessary air sampling equipment.

3.4 Pre-cleaning

The items that cannot be moved from the work area will be cleaned with a HEPA-filtered vacuum cleaner, wet wiped, and then covered with 6-mil poly sheeting and sealed with duct tape and left in place. All surfaces where a critical barrier will be installed will be HEPA vacuumed and/or wet wiped prior to installing the barrier.

3.5 Critical Barriers

Critical barriers will be installed at all exits or openings including doorways, duct systems, manholes, floor openings, drains, wall penetrations, etc., to ensure that the work area is isolated from the outside air. Small critical barriers will consist of 6-mil poly sheeting, spray adhesive, two-inch duct tape and staples as necessary. Large critical barriers that will be exposed to the elements will be constructed to withstand weather without collapsing, tearing or causing a breach in the containment. The large critical barriers will consist of 10-mil Dura-Scrim HUV reinforced poly sheeting, 2" duct tape, spray adhesive, staples and one-inch by two-inch by eight-foot furring strips fastened to the substrate with deck screws. As all surfaces within the buildings are to be considered impacted and will have to be cleaned, poly sheeting will not be installed on those surfaces.

Electrical conduit, junction boxes, and load centers will be sealed with two layers of 6-mil poly sheeting and duct tape. Care will be taken to ensure that all circuits are dry prior to re-energizing the buildings.

3.6 Floor Preparation

The concrete floors within the work area will be HEPA vacuumed and covered with 40-mil EDPM roofing membrane for the purpose of capturing water used to decontaminate building surfaces. Partial wood floors will be removed and the subsurface covered. Visible vermiculite will be removed before covering. Alternate sealing/capping procedures may be performed to close exposed earth and fill.

3.7 Negative Air Machine Requirements

For the purpose of this Decontamination Plan a Negative Air Machine (NAM) is defined as a self-contained filtering machine capable of producing air flow of 2000 cubic feet of air per minute (cfm) while pulling the air through a series of filters including a primary filter, a secondary filter, and a HEPA filter.

3.7.1 Pole Barn

- 190,080 cubic feet of work area / 4 air changes per hour = 12,672cfm; and
- 12,672cfm / 2,000cfm NAM capacity = 7 NAMs required.

3.7.2 Old Vermiculite Storage Facility:

- 140,000 cubic feet of work area / 4 air changes per hour = 9,333cfm; and
- 9,333cfm / 2000cfm NAM capacity = 5 NAMs required.

3.7.3 Large Lumber Warehouse:

- 105,000 cubic feet of work area / 4 air changes per hour = 7,000cfm; and
- 7,000cfm / 2,000cfm NAM capacity = 4 NAMs required.

3.7.4 Operating Planner Shop:

- 134,400 cubic feet of work area / 4 air changes per hour = 8,960cfm; and
- 8,960cfm / 2,000cfm NAM capacity = 5 NAMs required.

3.7.5 Small Shed:

- 63,000 cubic feet of work area / 4 air changes per hour = 4,200cfm; and
- 4,200cfm / 2,000cfm NAM capacity = 3 NAMs required.

Additional NAMs will be used as air scrubbers inside the work areas and to assist in air circulation.

3.8 Pressure Differential Monitoring

URS will continuously monitor and record the pressure differential between the work area and the area outside the work area with a manometer equipped with a strip chart-recording device.

3.9 Warning Signs

URS will post a sufficient number of warning signs to notify all persons in the vicinity of the work area of the dangers involved. The warning signs will be 20 inches high and 14 inches wide and will contain the following wording:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING REQUIRED IN THIS AREA

3.10 Pre-abatement Visual Inspection

After the items listed previously have been properly completed and the negative pressure has been verified, the Asbestos Abatement Supervisor will request that the on-site Asbestos Inspector conduct a pre-abatement visual inspection. When the Asbestos Inspector determines that the containment is complete and functioning properly, decontamination of the building contents will begin.

4.0 Removal of Inventoried Material

4.1 Decontamination of Salvageable Inventory

All items determined to be salvageable will be passed from the Dirty Room of the Material Decon Unit through the Air Lock and into the Cleaning Room. All items will be HEPA vacuumed, wet wiped with amended water, and passed through the Air Lock into the Clean Room, where each item will be visually inspected by the on-site Asbestos Inspector. If the item is determined to be clean, it will be loaded onto a forklift to be transported to the material holding area. If the item does not pass the visual inspection, the cleaning process will be repeated until the item is clean.

4.2 Removal of Non-Salvageable Inventory

All items determined to be non-salvageable will be wrapped in one layer of 6-mil poly sheeting or put into a printed 6-mil disposal bag and sealed with duct tape while still in the work area. The item will then be passed from the Dirty Room, through the air lock into the Cleaning Room where it will be wet wiped, wrapped in another layer of 6-mil poly sheeting or bag and properly labeled before being passed through the Air Lock and into the Clean Room. The material will then be transported to the mine disposal site.

5.0 Decontamination Of The Buildings

5.1 Gross Removal

The Large Lumber Warehouse and the Planer Shop have vermiculite insulation sandwiched between the walls. It will be necessary to remove the interior of these walls to access the insulation. The air will be constantly misted with amended water while the wall demolition is taking place. As soon as the material is accessible, it will be thoroughly wetted, scooped up with plastic shovels, and dumped into printed, 6-mil disposal bags. After all of the gross debris has been bagged, the bags will be handled in the same manner as the non-salvageable inventory.

5.2 HEPA Filtered Vacuuming

With exception of two areas listed previously, the decontamination of the buildings will begin by vacuuming all horizontal surfaces as well as vertical cracks and seams. A variety of vacuum attachments, some commercially available and some custom made, will be utilized with a variety of picks to dislodge and capture the dust and debris that has accumulated over the years. The air will be misted constantly with amended water through airless sprayers during the course of this process.

5.3 Pressure Washing

Two types of power washers will be utilized to decontaminate the buildings. Airless pumps equipped with malleable tip extensions will be used to blast hard-to-reach areas such as seams between wood siding and wood framing. The same techniques will be used for the seams between metal siding and wood framing. This system uses about 0.5 gallons per minute (gpm) and involves a 215 airless tip with 3,000 psi at the orifice that quickly dissipates the farther away from the surface it gets.

The bulk pressure washing will be accomplished using a power washer that can produce up to 4,000 psi with a number 2, 25 degree pressure washing tip. This system generates about 1.5 gpm with constant use.

The pressure washing procedure will be started at the top of the structures and proceed to the bottom. Once the bottom is reached, the procedure will be repeated. After all wastewater has been removed and filtered, the 40-mil roofing membrane will be lifted from the floor, properly packaged, and disposed of as contaminated waste. The floor will be decontaminated using low-pressure nylon brushes and wet-vacuums. Filtered water will be collected and disposed of to the sanitary sewer. All water generated and captured during the building abatement will be filtered using 5-micron filters and disposed in the sanitary sewer.

The outside of the structure will be closely monitored for over-spray during the pressure washing process. Over-spray will be dealt with using spill procedures.

5.4 Feasibility of Decontamination Between Siding and Wood Framing

If a linear gap is present between the wood or metal siding and the wood framing, the possibility exists that fiber migration to those locations has occurred. The gap can be decontaminated by directing the pressure washer nozzle into the gap.

If a linear gap does not exist, it is reasonable to assume that fiber migration to the surfaces between the siding and framing has not occurred. Siding has a tendency to either remain tightly secured to the substrate or pull away from the substrate. It is not likely that the siding pulled away from the substrate at some point in time, long enough for AIM to occur, and somehow refasten itself to the substrate.

5.5 Specific Building Notes

5.5.1 Pole Barn

Sections of the corrugated metal roof will be removed as directed by the on-site Asbestos Inspector in order for the Asbestos Inspector to obtain a representative sampling of the asphalt roof to determine if the shingles are contaminated. If necessary, all of the corrugated metal will be removed.

5.5.2 Old Vermiculite Storage Warehouse

Sections of the corrugated metal roof will be removed as directed by the on-site Asbestos Inspector in order for the Asbestos Inspector to obtain a representative sampling of the wood roof to determine if the wood is contaminated. If necessary, all of the corrugated metal will be removed.

The wood floor will be removed and disposed of as AIM waste. The subsurface will be cleaned, capped or covered during cleaning as determined after removal.

5.5.3 Planer Shop

Power washing is an acceptable practice around machinery if the proper precautions are taken to ensure that the machinery is pre-cleaned, sealed, and a rigid cover is constructed prior to the power washing operation.

It is our intent to accomplish the Planer Shop decontamination between the periods that the planer will be in operation.

5.5.4 Small Shed

The roof is metal over tar paper. A section of metal will be removed and inspected. If no asbestos is noted by the inspector, the roof and paper need not be removed.

5.6 Visual Inspection, Encapsulation and Clearance Air Testing

At the time of the second cleaning, all tools and equipment remaining in the work area will be decontaminated and removed from the area, and all decon facilities will be "final cleaned." Once this is completed, the area will be ready for the final visual inspection by the Asbestos Inspector. If the results of the inspection are satisfactory, the Asbestos Inspector will release the area for encapsulation. Post removal encapsulant will then be applied with an airless sprayer to all surfaces within the containment. After the encapsulant has had sufficient time to dry, the Asbestos Inspector will conduct final aggressive clearance air testing (see Sampling Plan). If all clearance criteria are met, it will be safe to seal the intake side of the NAMs and turn them off.

5.7 Post Removal Action

URS will install two NAMs with clean filters, directing and sealing the exhaust to the inside of the building. The decon facilities will be dismantled and the opening sealed with Dura-Skrim sheeting. The NAMs used during the decontamination process will be removed and the

openings sealed. The critical barriers and two NAMs will be left in place until the soil excavation is complete. The positive pressure will prevent fiber migration to the inside of the clean buildings.

6.0 Waste Disposal

6.1 Truck Liners

All trucks hauling contaminated waste will be lined with one layer of 6-mil poly sheeting. After the truck has been filled, its contents will be covered with one layer of 6-mil poly sheeting fastened with spray adhesive and duct tape.

6.2 OSHA Warning Labels

All asbestos waste containers will be labeled with the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND
LUNG DISEASE HAZARD
WARNING
DO NOT BREATHE ASBESTOS FIBERS

6.4 Generator Labels

All asbestos waste packages will be labeled with the required generator information that includes the owner's name and the location at which the waste was generated.

6.5 DOT Transportation Label

All waste packages will be labeled with the two required DOT labels. The first label is the 9 diamond placard with vertical black and white stripes on the upper half of the diamond and 9 on the lower half. The second label reads as follows:

RQ HAZARDOUS SUBSTANCE
SOLID, N.O.S. (ASBESTOS)
ORM-E, NA-9188

APPENDIX E
TRAFFIC CONTROL PLAN

1.0 Introduction

This traffic control plan describes procedures that will be followed during the transportation of materials from the Export Plant to the designated mine disposal site near the Vermiculite Mountain Mine (Disposal Site). This plan has been established in accordance with appropriate local regulations and requirements and will be maintained throughout the duration of remedial activities at the Export Plant. Traffic control is necessary on the roadway between the Export Plant and Disposal Site due to potential interactions with other vehicles and restricted access on portions of the roadway.

To implement this plan, URS will employ three "flaggers" and one Traffic Control Foreman. This plan describes the responsibilities of each of these individuals and their part in maintaining a safe, efficient transportation of waste material from the Export Plant to deposition at the Disposal Site.

WR Grace anticipates that up to 30,000 cubic yards of debris and soil may be removed from the Export Plant. This estimates that a 12-inch cut of surface soil will be removed across the property. URS will employ six to eight trucks for hauling the material to the mine disposal site. Each truck has a capacity of 20 cubic yards and will make approximately three round trips per day. Thus, an estimated 20 truck loads will be moved per day, over a three month period of time.

Mobilization and demobilization activities involve limited staggered vehicular traffic, and will be performed under present Department of Transportation (DOT) regulations and local traffic control measures.

It is important to note that the traffic control procedures described herein assume disposal of Export Plant material at the mine site. This plan will require modification under two "other" potential scenarios:

- (1) an alternative waste disposal location, such as the Spokane, Washington, landfill is selected; and/or
- (2) Waste disposal and traffic control activities for either the mine site or Spokane are coordinated with trucking and disposal of waste from the Parker Nursery site.

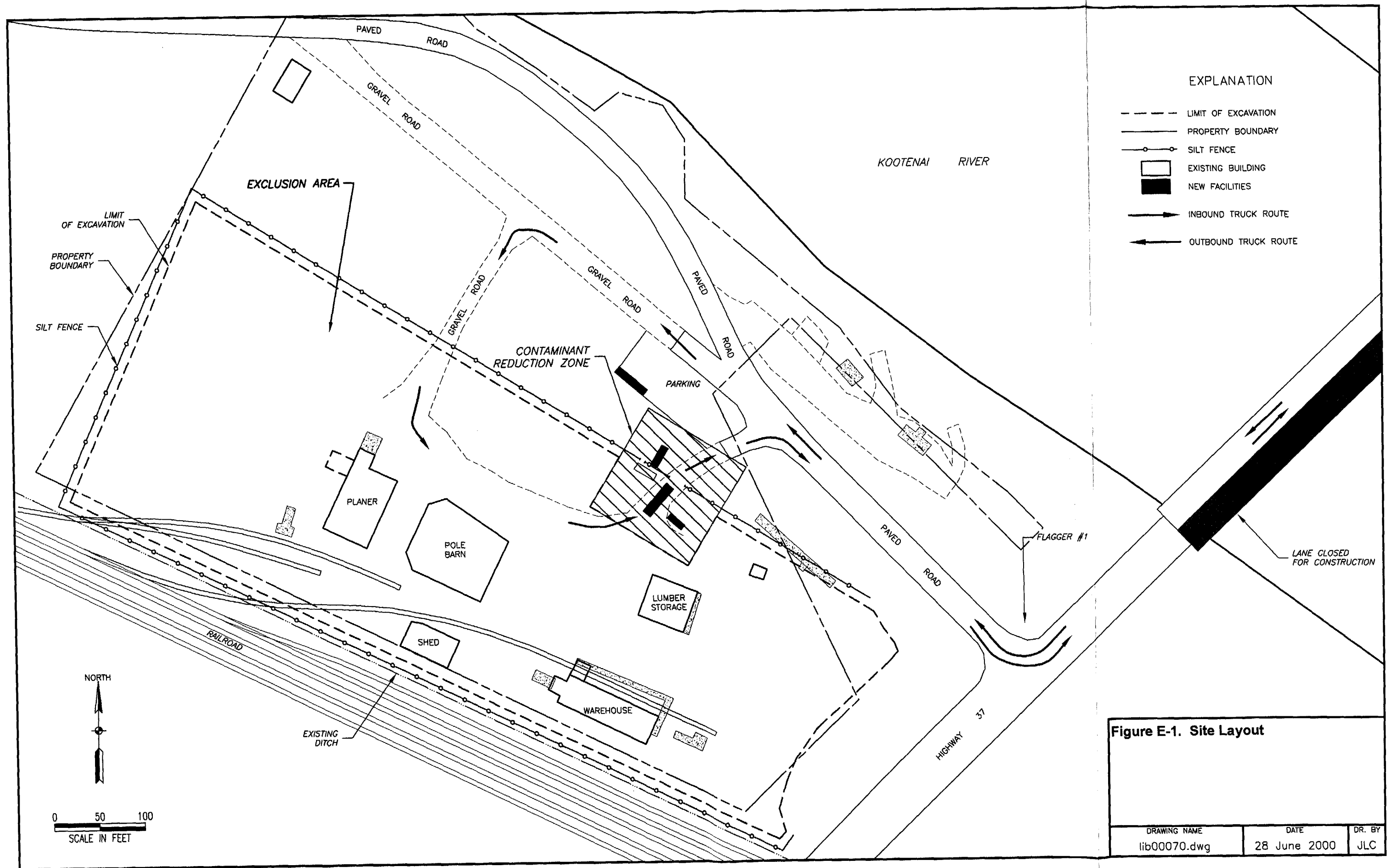
Therefore, this Traffic Control Plan may be amended pending a final decision regarding the waste disposal. Any plan modification will be submitted for approval by the EPA.

2.0 Export Plant

The Export Plant is located on the northern edge of Libby, Montana and is bounded on the north by the Kootenai River; on the south by the Burlington Northern Railroad track; on the east by Highway 37; and on the west by the State of Montana Property. The site may be accessed from Highway 37 North, by turning west onto the City Service Road, just South of the Kootenai River Bridge. See **Figure E-1** for a detailed site layout.

Access to the Export Plant will be restricted during the removal action and remediation activities (see Work Plan for details). Designated clean parking areas will be maintained for personnel and authorized visitor vehicles on the north side of the Export Plant near property center, between the access and egress roads and adjacent to the City Service Road. This area is delineated on **Figure E-1**. Designated equipment parking areas will be maintained within the restricted zone. This area will be on the east side of the Export Plant, near Highway 37, between the railroad tracks and city service road. All vehicles parked in this area will be decontaminated before leaving the site (see Work Plan for details).

Vehicles utilized for waste transportation will enter the Export Plant site from the west entrance, or "second drive," off the City Service Road. Prior to entering the Export Plant site at the start of a work shift, each driver will be outfitted in a Tyvek[®] suit and fitted with a half-face respirator. This PPE will be worn during all driving operations, until both the vehicle and driver are decontaminated. Also, each truck bed will be lined before crossing into the restricted zone and receiving waste product for transportation to the Disposal Site. All waste transportation vehicles will have their loads covered (as per Building Decontamination Plan, Appendix D) and will be decontaminated at the wash pad by washing wheels and undercarriage, as needed. The vehicles will be inspected to prevent tracking of material onto the highway and roads. The wash pad will be located near the east exit, or "first drive," off the City Service Road prior to leaving the Export Plant. As a result of potential traffic congestion, limited space, and roadway conditions, vehicle traffic speeds will not exceed five miles per hour (mph) in this area.



3.0 Transportation Route

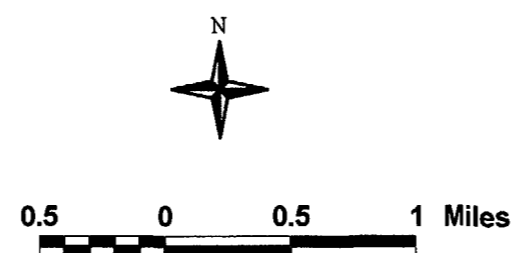
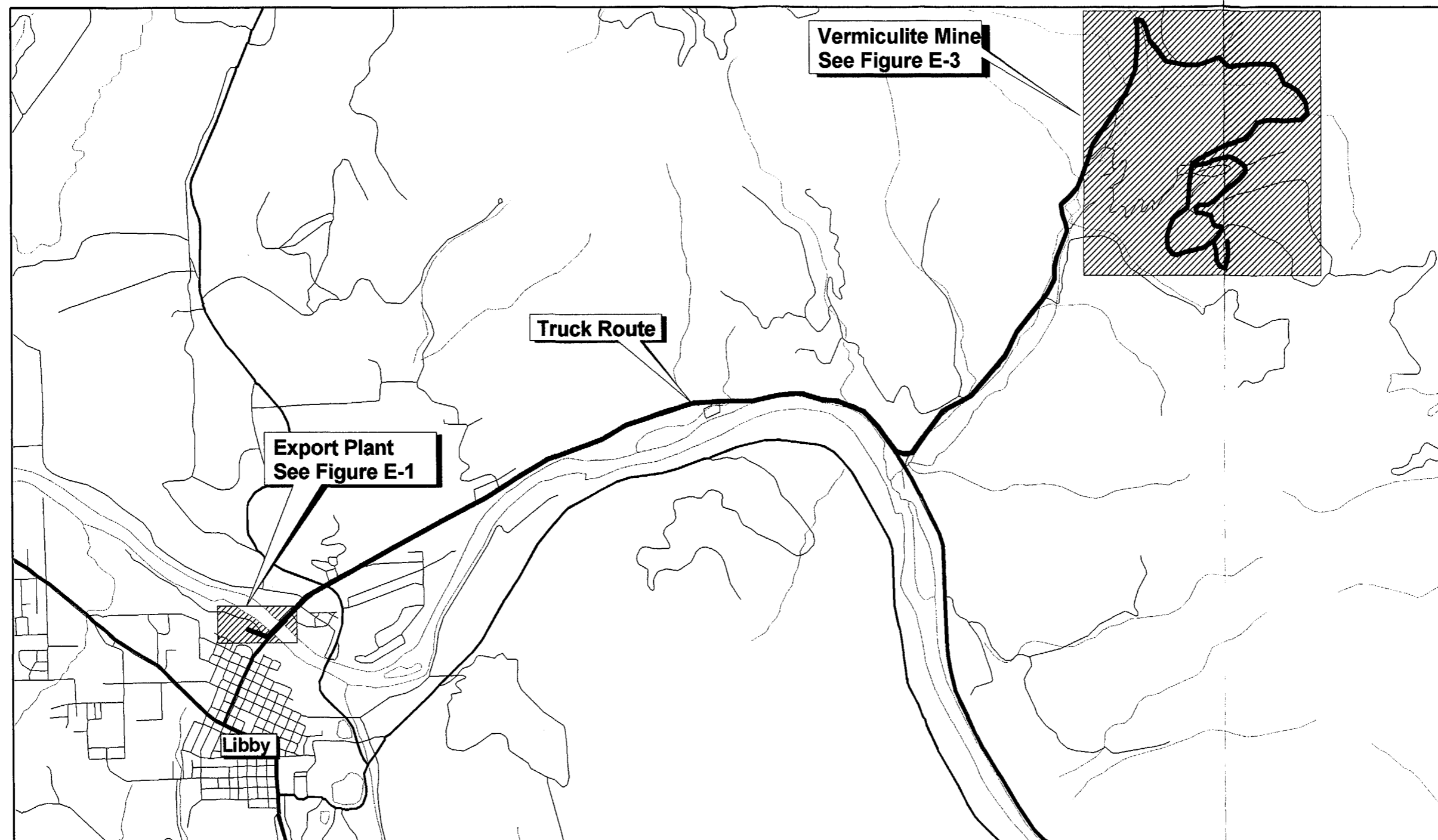
Waste transportation vehicles will exit the Export Plant site and travel north on Highway 37 across the Kootenai River Bridge. The Kootenai River Bridge is under construction through October 2000, and one lane of the bridge will be closed throughout this time. The first flagger, Flagger #1, will be located just south of the Kootenai River Bridge and will coordinate inbound and outbound waste transportation vehicle traffic so that impacts on the local community and potential conflicts with highway bridge repair may be minimized or eliminated.

Presently, traffic control lights at each end of the Kootenai River Bridge control traffic over this bridge. Once the traffic light is green for northbound traffic, Flagger #1 will contact the waste transportation vehicle ready for travel to the Disposal Site, holding local traffic on the south side of the bridge until that vehicle has passed. Vehicles returning from the Disposal Site will contact Flagger #1 via radio to hold northbound traffic for the wide turn necessary for return vehicles to reenter the Export Plant. Waste transportation vehicles will travel north approximately seven miles to Rainey Creek Road, a gravel road that leads to the mine disposal site (**Figure E-2**). It is anticipated that there will be no additional traffic control requirements along Highway 37 to and along Rainey Creek Road until vehicles reach Flagger #2's position (**Figure E-3**). Flagger #2 and #3 control ingress and egress traffic within the former Vermiculite Mountain Mine Site.

4.0 Disposal Site

The Disposal Site presently being considered for use is located within the former Vermiculite Mountain Mine at Hole #23. Alternate areas are also being discussed with the mine owners and EPA. Access to the mine is via Highway 37 and Rainey Creek Road, which narrows to a single-lane, gravel access road (**Figure E-3**).

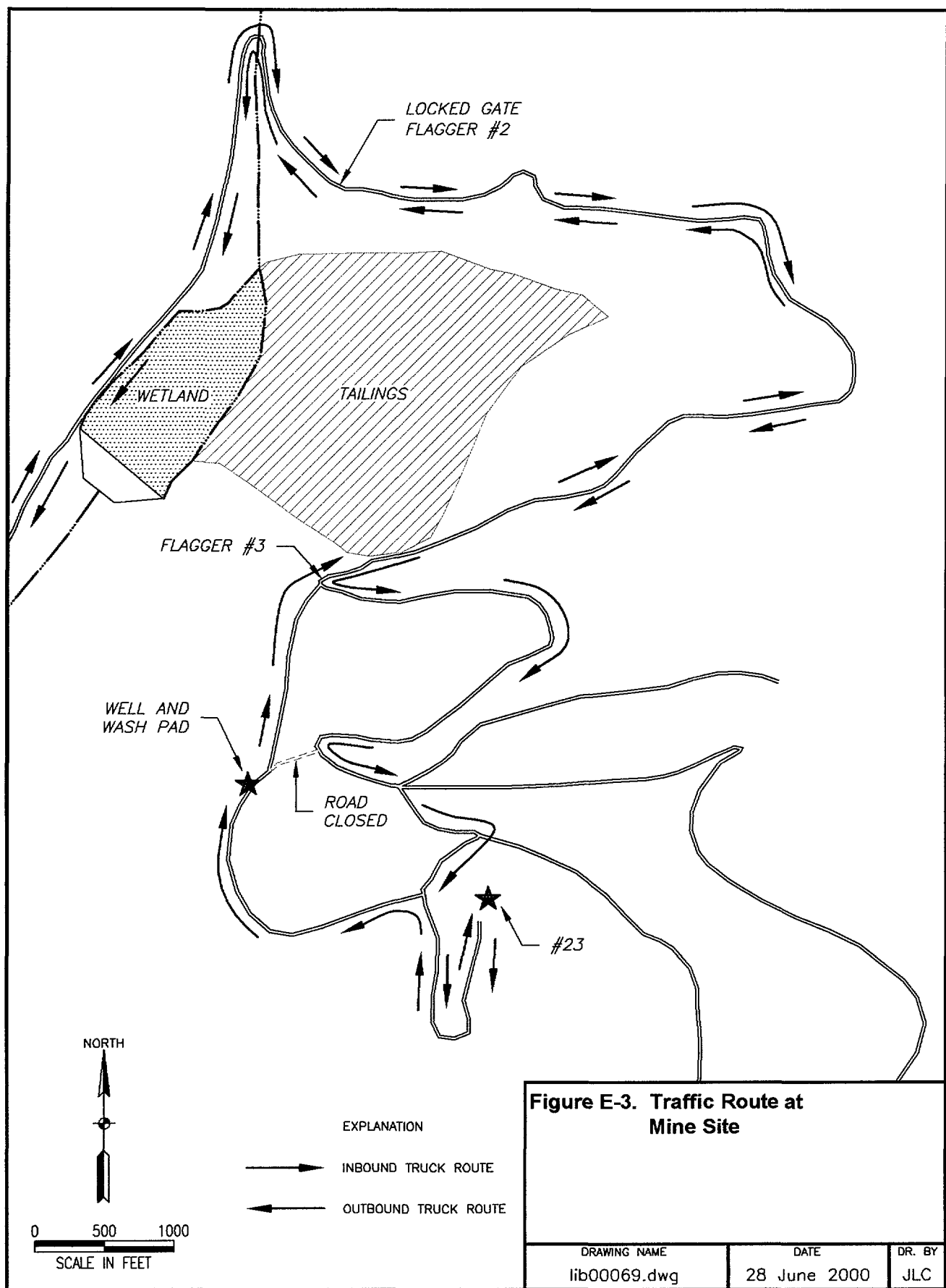
Primary Disposal Site traffic ingress and egress control activities will be associated with the single-lane, gravel access road leading to the mine Disposal Site. Access to the Disposal Site will be restricted to personnel associated with operations at the Disposal Site. The roadway from the mining gate to the Disposal Site is a single-lane gravel road with grades as steep as five percent. In addition, the road has several blind curves with steep drop-offs. As a result of these potential dangers, the road between the mining gate and the Disposal Site will be utilized as a single/reversible lane, controlled through radio contact between Flagger #2 and Flagger #3.



Reference: U.S. Geological Survey,
Libby and Vermiculite Mountain Quadrangles, Montana
7.5 Minute Series Topographic Maps

**Figure E-2. Route from
Export Plant
to Mine Site**

FILE NAME libby.apr	DATE 28 JUNE 2000	DR. BY JLC
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Flagger #2 will be located just west of the mining gate, as illustrated on **Figure E-3**. This flagger will control inbound waste transportation vehicles prior to the road narrowing to a single lane and will halt inbound traffic while traffic is exiting the Disposal Site. This location is important for regulating all traffic, which may include Disposal Site workers, Export Plant waste transportation vehicles, and EPA vehicles. Accurate accounting of the number of vehicles on the single-lane road between Flagger #2 and Flagger #3 will allow for tracking of all vehicle locations and eliminate potential collision dangers.

Flagger #3 will be located at the Disposal Site at a point where the road widens to two lanes, and splits at a "Y" for inbound and outbound vehicles. Flagger #3 will direct inbound waste transportation vehicles to disposal site #23 and vehicle returns that arrive northbound after washing. Any inbound waste transportation vehicle will be given priority whenever possible. Outbound traffic from the Disposal Site will be decontaminated prior to leaving the site (see Work Plan for details). Outbound traffic will be held until coordination between Flagger #3 and #2 confirms "IN" or "OUT" one-way passage.

5.0 Traffic Operations Foreman

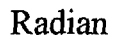
The Traffic Operations Foreman will monitor all radio communications and note waste transportation vehicle task completions and route progress on a Daily Traffic Control Report (**Table E-1**). This report will serve as a useful tool to track material transported, vehicle speed and spacing, needs for increased or decreased trucking requirements, and as a backup monitoring of traffic on the single-lane gravel road between Flagger #2 and Flagger #3 near the mine disposal site. Additional responsibilities are dust control at each site and along Rainey Creek Road, coordination of refueling, radio maintenance, and flagger placement and rotation.

6.0 General Guidelines

To maintain safe transportation practices, a number of general guidelines have been established and will be shared with all participants involved in waste transportation activities. All personnel will comply with these guidelines. The following is a discussion of speeds not to be exceeded by waste transportation vehicle personnel, barricades and signs, radio communication practices, and vehicle maintenance.

Color Chart(s)

The following chart(s) contains color that does not appear on the scanned image(s).



When Red "Danger" Trucks Are Proceeding

Helps

Date:
Project #:
Client Contact:
Prepared By:

Weather: Temperature: Wind Speed:

Single Lane Status

Up

Down

[illegible]

[illegible]

6.1 Speed Limits

- Export Plant Site: less than 5 mph;
- Highway 37 between Export Plant and Rainey Creek Road: as posted (not to exceed 45 mph or 60 mph);
- Rainey Creek Road (two-lane gravel): 20 mph. Rainey Creek is to be restricted from other traffic in the area of the mine during operating hour per agreement with the Forest Service;
- Mining Gate to Disposal Site (single-lane gravel): 15 mph (use lower gears - steep down grades); and
- Disposal Site: less than 5 mph.

6.2 Barricades, Signs, Protective Equipment

Barricades and signs will be placed at the Highway 37 and Rainey Creek Road intersection and along side Rainey Creek Road at intersecting logging roads to inform others of additional truck traffic and to direct the waste transportation vehicles to the second mining gate to the disposal site. Flaggers will be equipped with a hard hat, orange traffic vest, Stop/Slow sign, radio, and clipboard for tracking inbound and outbound traffic. A DOT required sign will be appropriately posted on Highway 37 feet prior to flaggers warning of temporary traffic conditions ahead.

6.3 Problems

The flaggers will use radios to maintain constant communications with each other, the Traffic Control Foreman, and the waste transportation vehicles. All vehicles will be equipped with radios in good working order so that any problems encountered on the road may be reported immediately. Any problems encountered will be reported to the Traffic Control Foreman.

6.4 Fuel

Waste transportation vehicles will report fuel levels at the end of each day to the Traffic Control Foreman. Refueling will be conducted while waiting to be loaded at the Export Plant site and/or local service stations.

Additional traffic control procedures will be documented in writing as an addendum to this Traffic Control Plan, as required.

APPENDIX F
DUST CONTROL PLAN

1.0 Introduction

The URS Dust Control Plan provides fugitive dust control measures to be utilized during work activities associated with Export Plant remediation. URS will maintain the project site so as to mitigate visible dust during URS activities, in compliance with this Dust Control Plan, and will comply with contractor requirements.

2.0 Site Location

The project site is the Export Plant at Libby, Montana. The work site encompasses the Export Plant's existing buildings, roads, and support areas, transportation routes to the former Vermiculite Mine disposal area and related mine areas presently identified for disposal (Hole No. 23). Alternate disposal locations, if used, would be addressed by addendum to this plan. Such an addendum will be submitted for review and approval by the EPA.

3.0 General Requirements

The general requirements of this plan ensure that adequate resources will be available to control dust 7 days per week and 24 hours per day. These requirements also detail the means and methods that URS will use to implement dust control measures during remediation and removal activities. URS plans to control dust during weekends, holidays, and other hours when work is not in process relying heavily on Best Management Practices, as follows. URS plans to haul debris to the appropriate landfill on the same day it is accumulated. If a debris pile remains after normal working hours, the pile and surrounding areas will be moistened with water and covered before personnel leave the site. Pile covers will be poly or tarp and secured by sandbags, rope and stakes as necessary to prevent blowing. Water will not be allowed to run off from the staging area.

To ensure that URS has total control of the resources needed to respond to an unforeseen off-hour dust problem, we will have a water truck on site at all times. The Construction Foreman will be responsible for dust control during times when work is not in progress. If the Foreman is not available, he or she will assign responsibility to the Project Manager or the Health and Safety Officer. URS will have at least two qualified employees on call to operate trucks and hoses during off-hours. Attachment B contains the names and contact numbers of URS management personnel for off-hours response.

URS dust control measures are designed to control visible dust. The Foreman will be responsible for daily weather tracking to prepare for high wind and/or dusting conditions. Weather information will be recorded on the URS Daily Control Report. URS will monitor weather conditions prior to leaving the site and during off-hours to get an indication of whether dust controls may be necessary. These administrative, engineering, and physical controls will include but will not be limited to:

- Wetting surfaces with water;
- Applying dust suppressants, where applicable (magnesium chloride on Rainey Creek Road);
- Minimizing soil, road, and surface disturbances;
- Minimizing dusting exposure periods and wind erosion before dust-abatement measures are applied;
- Curtailing work activities during high wind conditions (to be field determined and set based upon location – Export Plant or mine site);
- Minimizing drop heights when dumping or transferring material;
- Controlling vehicle speeds on unpaved surfaces and haul roads;
- Restricting traffic to designated roads and corridors;
- Selecting the appropriate equipment; and
- Suspending loading or removal operations if an adequate water supply is not available.

4.0 Dust Control Measures

As specified in URS Dust Control Plan, Section 3.0 General Requirements, URS will control all visible dust. This includes dust control during removal activities, sizing and loading materials, and hauling materials to the appropriate landfills. URS proposes to use water to suppress visible dust during operations. Water will be URS main resource for dust control.

URS will keep all work areas, including haul roads and access points within the Export Plant, and the disposal area at the mine, thoroughly wet during our work activities at the Export Plant and mine. This will be accomplished using water trucks. URS will use the existing hydrant and city water sources presently under utilization agreement outside the exclusion zone at the Export Plant, the existing well and a holding tank at the mine, and water trucks as necessary to accommodate multiple operational sites. Each water truck will be equipped with

spray bars for wetting haul and access roads. Each water truck will be fitted with a power train operation (PTO) pump capable of supplying water in a quantity and at a pressure sufficient to efficiently control dust in remote areas where water truck spray bars may not be used. Excess water use will be avoided to minimize runoff and erosion of adjacent soils.

4.1 Loading and Debris Transportation

During loading, unloading, and material transfer operations, URS will minimize material drop heights to reduce emissions of visible dust. Trucks loaded with debris and soils will be covered. After debris is loaded into the truck beds, URS will cover all loads before the vehicles leave the loading areas. During debris loading, additional water will be sprayed to control fugitive dust emissions.

4.2 Dust Suppressants

Water will be the primary dust control measure used. However, other approved dust suppressants may be required during periods when the application of water is inadequate. Magnesium chloride solution will be applied to Rainey Creek Road prior to initiation of disposal truck activities and reapplied to areas as necessary. See Section 8.0 for dust control materials.

4.3 Area Controls

URS will use designated loading areas for each removal location to minimize soil and road disturbances and to control material transfer operations.

5.0 Dust Control Equipment

URS will utilize the following equipment for dust control:

- Water truck(s) equipped with spray bars and pressurized hoses;
- Fire hoses (approximately 500 feet of 1- to 1.5-inch hose will be available on site);
- Valves; and
- Fittings for remote area water application/spraying.

6.0 Working Hours Per Day

URS anticipated work schedule for the duration of the project is Monday through Saturday, 10 working hours per day.

APPENDIX G
EROSION CONTROL PLAN

1.0 Erosion Control Plan

Erosion control measures described in this plan pertain to temporary erosion control and sediment control measures during activities associated with the removal action at the Export Plant in Libby, Montana. These measures (including but not limited to the installation of sediment barriers [such as silt fence or hay bales], ditches, and drainage controls will ensure that erosion of soils will be minimized, silting or muddying of drainage channels, the Kootenai River or Rainey Creek will be minimized, and impact to adjacent lands will be minimal. The URS contractor will install all major temporary erosion and sediment control features prior to the start of any land disturbances (Table G-1). The enclosed Erosion Control Plan Figures (G-2, G-3, and G-4) will be used as a guide to installing erosion and sediment control measures. EPA and Soil Conservation Service guidelines were reviewed for general erosion control information. The following sections discuss erosion and sediment control best management practices that will be used during the Export Plant Removal Action.

1.1 Detailed Plan

The Export site is generally flat and runoff from storm events would be minimal relative to infiltration. Silt fencing will be installed along the southwest and north perimeters of the site (Figure G-1). Hay bales will be installed at the discharge end (west) of the Railroad drainage swale. The silt fencing will be constructed to tie into the west slope of Highway 37 on the east side of the site. Silt fencing will be extended as necessary to mitigate sediment discharge to the adjacent property and the Kootenai River. Any drainage deficiencies surrounding the former Export Plant site will be adjusted to tie in with the existing drainage control structures. Either modifications to existing drainage ditches or newly constructed drainage ditches may be required during the removal action and will be addressed during the construction process (Figure G-5). Additional containment berms may also be required during the removal action and will be addressed during the construction excavation process.

The following procedures will be followed to minimize mud on public roads:

- Install gravel entrances at the junction of the construction site and public roadways. Gravel entrances will be constructed of a clean two-inch minus quarry rock or equivalent; and
- Install a decontamination wash pad facility where all construction equipment and vehicles can be driven onto a pad and washed with water to remove visible signs of soil and mud from the exterior of the equipment or vehicle before leaving the Export site. The details of this facility and associated operating procedures are outlined in

the Decontamination and HSP plans. Similarly, if the mine is to be used for disposal, an exit wash pad will be utilized for trucks leaving the upper mine area. This pad will be adjacent to the existing well. Again, disposal Hole #23 is flat and stormwater infiltrates. A secondary line silt fence will be installed at the outer southern edge of the disposal area.

Rainey Creek road will be inspected for points of runoff to Rainey Creek and adjacent slopes. Silt fence and hay bale will be installed at select spots to collect fines mobilized by stormwater and the higher traffic impact. During heavy rains trucking will be restricted.

1.2 Structural Practices

The following structural erosion and sediment control practices will be used at the Export Plant site:

- Silt fence or staked hay bales will be keyed in place between the sediment source and areas just downgradient, within the construction area, before intrusive construction and excavation activities begin and as necessary;
- Sediment-laden water will be filtered using erosion and sediment control measures such as staked hay bales or staked geotextile silt fence placed in natural or man-made drainageways. Hay bales and silt fence will be placed in such a manner as to prevent sediment from going around or under them;
- Temporary drainage ditches to divert surface water run on and run off around the site will be constructed as necessary before intrusive construction activities begin. The drainage ditches will either be a V-type or a flat-bottom type, with an average depth of one foot and side slopes of two-to-one. The length of any new ditch will be field determined when field personnel are on site;
- Fill stockpiles will be visually monitored during and after precipitation events. The stockpiles will be secured by covering with plastic when not in use. If sediment laden runoff develops, silt fence will be used to runoff; and
- Temporary berms of compacted soil may be keyed into existing surface and used to safely manage surface water run on and run off in and around the construction areas.

1.3 Inspections

The contractor shall ensure that qualified personnel visually inspect all the construction areas for erosion daily (more frequently during heavy precipitation) during operations and report as part of the weekly information, action and corrective actions. The inspections will report evidence of sediment entering drainageways and ensure that all best management practices are functioning properly. Any deficiencies (e.g., a silt fence down or clogged, a seeded area washed

out, etc.) observed and/or reported on a feature must be repaired as soon as practicable. Records of all inspections will be maintained. Areas to be inspected include:

- Disturbed areas of the construction site shall be inspected for evidence of erosion;
- Disturbed areas and areas used for storage of materials (topsoil stockpiles, etc.) that are exposed to precipitation shall be inspected for evidence of erosion;
- Locations where vehicles enter or exit the construction site shall be inspected for evidence of off-site sediment tracking;
- Disposal and traffic areas at the mine site prior to disposal area restoration completion; and
- Erosion barrier silt fences and hay bales shall be checked for signs of deterioration and sediment accumulation.

1.4 Maintenance

Maintenance of erosion- and sediment-control measures will be conducted as necessary to ensure they are functioning properly. Maintenance procedures include:

- Sediment deposits will be removed from behind silt fences, hay bales, and other controls when they reach a height of one-half of the barrier. Accumulated sediment will be removed and placed with the materials being transported to the disposal site;
- Erosion-control devices will be replaced, repaired, or repositioned, as necessary; and
- Removal areas will be finished with compacted gravel or topsoiled and seeded as soon as possible after final site grading has been completed.

All repairs and maintenance activities should be implemented as soon as practicable after the inspection, but no later than seven calendar days following the inspection.

1.5 Record Keeping

An inspection and maintenance report form must be completed during each site inspection (at least once every seven-calendar days). A copy of a standard form can be found as Figure C3-6. Copies of completed inspection reports must be kept on site.

A copy of this plan will be kept at the construction site from the start of construction through the final construction inspection.

Table G-1. W.R. Grace & Co. Libby, Montana, Site

INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT THAT CAUSES EROSION.

Inspector: _____

Date: _____

Signature: _____

Days since last rainfall: _____

Approximate amount of last rainfall: _____

Area	Disturbed? (Yes/No)	Stabilized? (Yes/No)	Stabilized with?	Condition

Stabilization and/or maintenance required: _____

To be performed by: _____

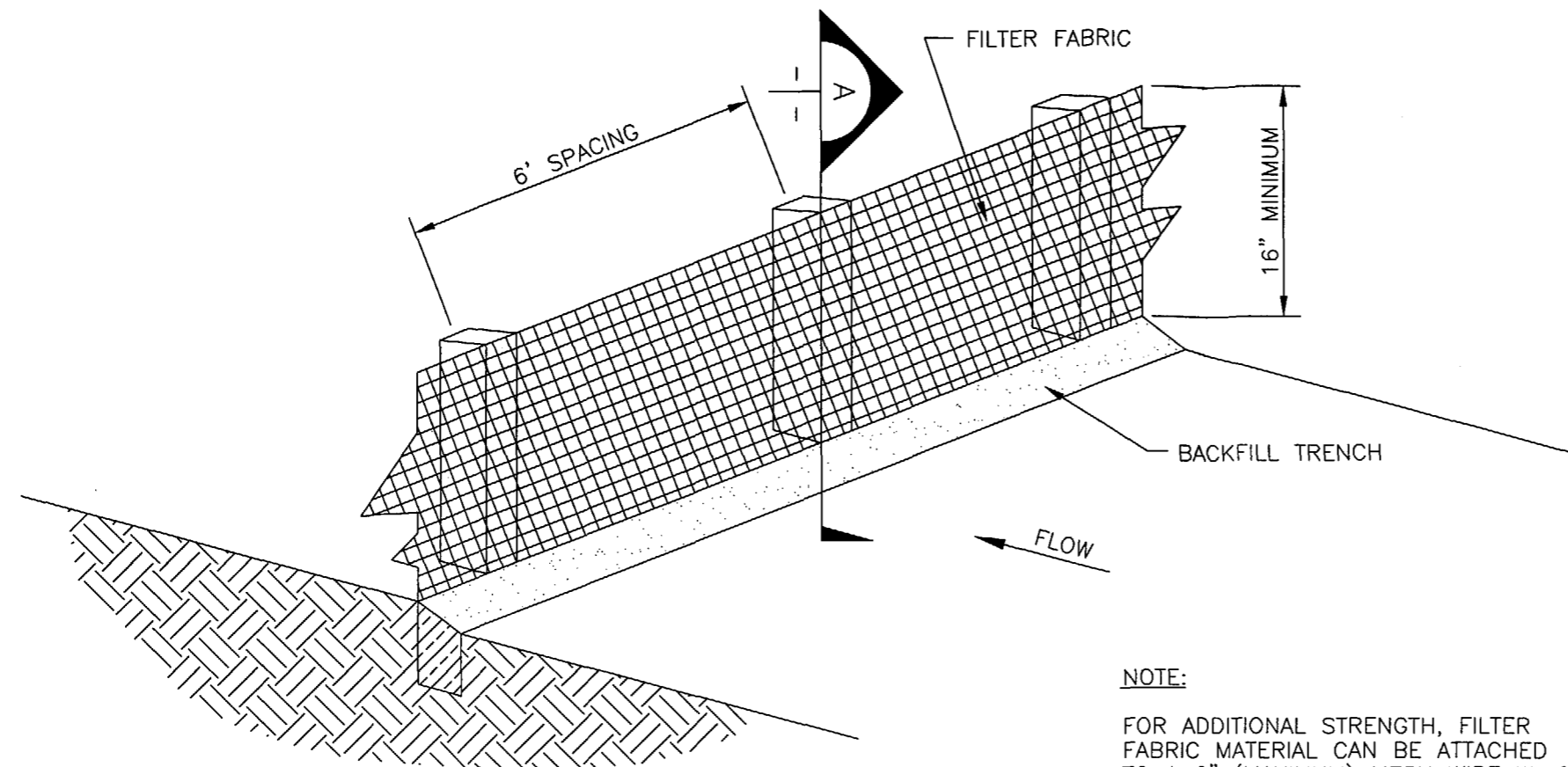
On or before: _____

STRUCTURAL CONTROLS

Structural Control	Control in Satisfactory Condition? (Yes/No)	Maintenance or Corrective Action Needed	Date Corrected	Comments

Color Chart(s)

The following chart(s) contains color that does not appear on the scanned image(s).



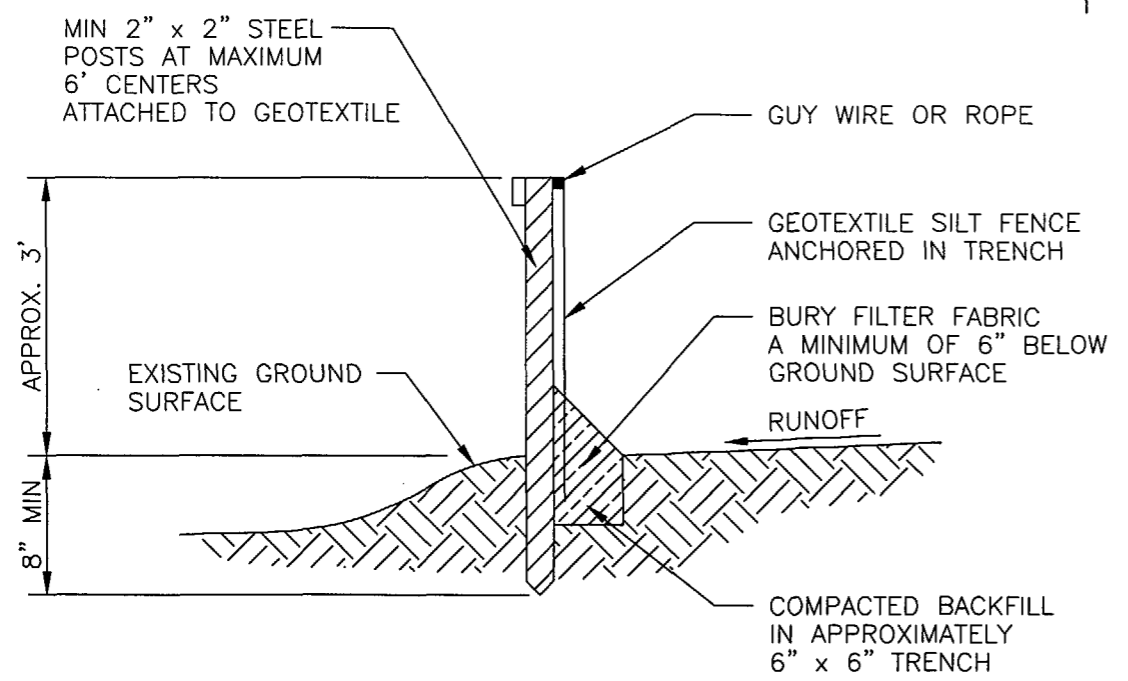
GENERAL NOTES:

1. SILT FENCE WILL BE PLACED SUCH THAT RUNOFF WILL NOT FLOW BETWEEN, AROUND, OR UNDER IT. SILT FENCE WILL BE ANCHORED AS SHOWN.
2. SILT AND SEDIMENT WILL BE REMOVED BY THE CONTRACTOR AFTER EACH SUBSTANTIAL RUNOFF EVENT. DEPOSITS WILL BE REMOVED WHEN THEY REACH A HEIGHT OF ONE HALF OF THE BARRIER.
3. SILT FENCE WILL BE USED ADJACENT TO DISTURBED AREAS AS SHOWN ON PLANS AND AS NEEDED. SILT FENCE WILL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND PLACED AWAY FROM THE TOE OF THE SLOPE FOR INCREASED HOLDING CAPACITY.

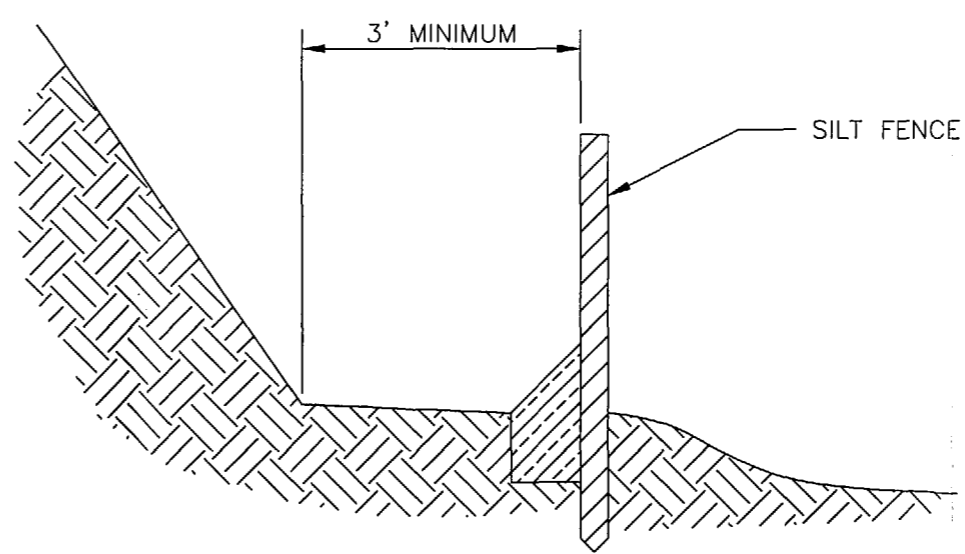
NOTE:

FOR ADDITIONAL STRENGTH, FILTER FABRIC MATERIAL CAN BE ATTACHED TO A 6" (MAXIMUM) MESH WIRE WHICH HAS BEEN FASTENED TO THE POSTS.

SILT FENCE INSTALLATION
NOT TO SCALE

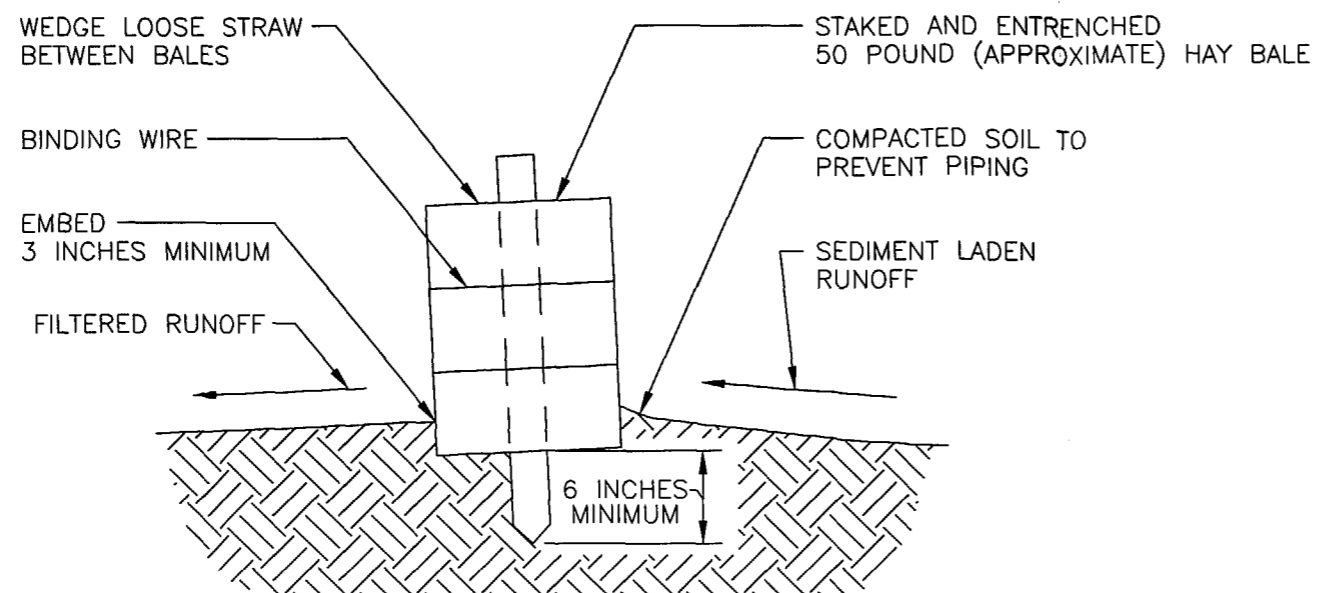


CROSS SECTION-SILT FENCE INSTALLATION
NOT TO SCALE

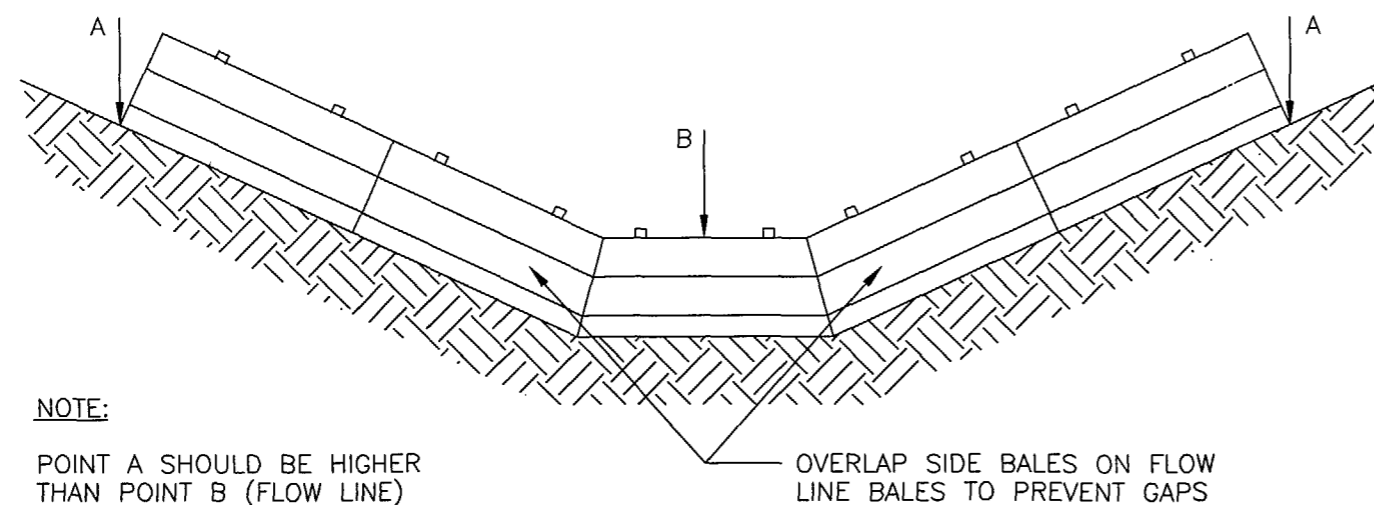
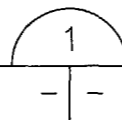


SILT FENCE INSTALLATION
AT TOE OF SLOPE
NOT TO SCALE

W.R. GRACE & CO.
DESIGN MODIFICATIONS FOR LIBBY ASBESTOS SITE
EROSION AND SEDIMENT CONTROL PLAN TYPICAL SILT FENCE INSTALLATION



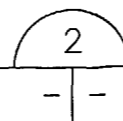
CROSS-SECTION OF A PROPERLY
INSTALLED HAY BALE
NOT TO SCALE



NOTE:

POINT A SHOULD BE HIGHER
THAN POINT B (FLOW LINE)

PROPER PLACEMENT OF HAY BALES
OR SILT FENCE IN DRAINAGE CHANNEL
NOT TO SCALE



GENERAL NOTES:

1. HAY BALES SHALL BE PLACED SUCH THAT RUNOFF WILL NOT FLOW BETWEEN, AROUND OR UNDER THEM. BALES SHALL BE ANCHORED WITH 2"x2"x4' WOODEN STAKES, TWO PER BALE.
2. SILT AND SEDIMENT WILL BE REMOVED BY THE CONTRACTOR AFTER EACH SUBSTANTIAL RUNOFF EVENT. DEPOSITS SHALL BE REMOVED WHEN THEY REACH A HEIGHT OF ONE HALF OF THE BARRIER.
3. THE USE OF DOUBLE ROWS OF OVERLAPPING HAY BALES SHALL BE USED AT CONCENTRATED FLOW POINTS. HAY BALES WILL BE STAGGERED AT APPROXIMATELY 100 FOOT INTERVALS OR LESS IN DRAINAGE CHANNELS TO AID IN EROSION CONTROL.

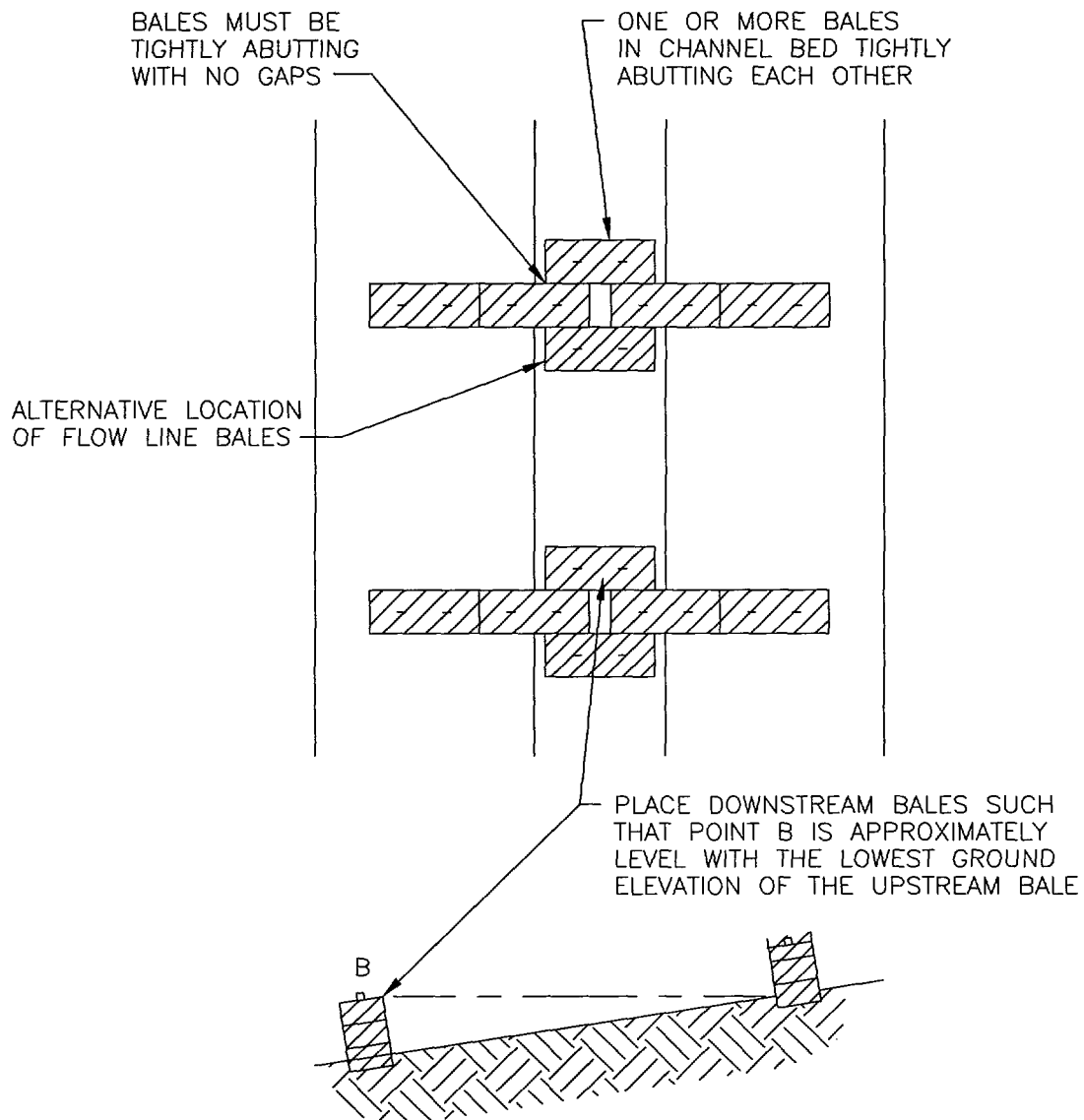
W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR
LIBBY ASBESTOS SITE

EROSION CONTROL PLAN
TYPICAL HAY BALE INSTALLATION

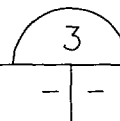
Figure G-3

JUNE, 2000



HAY BALE INSTALLATION FOR WIDE DRAINAGE CHANNELS

NOT TO SCALE



W.R. GRACE & CO.

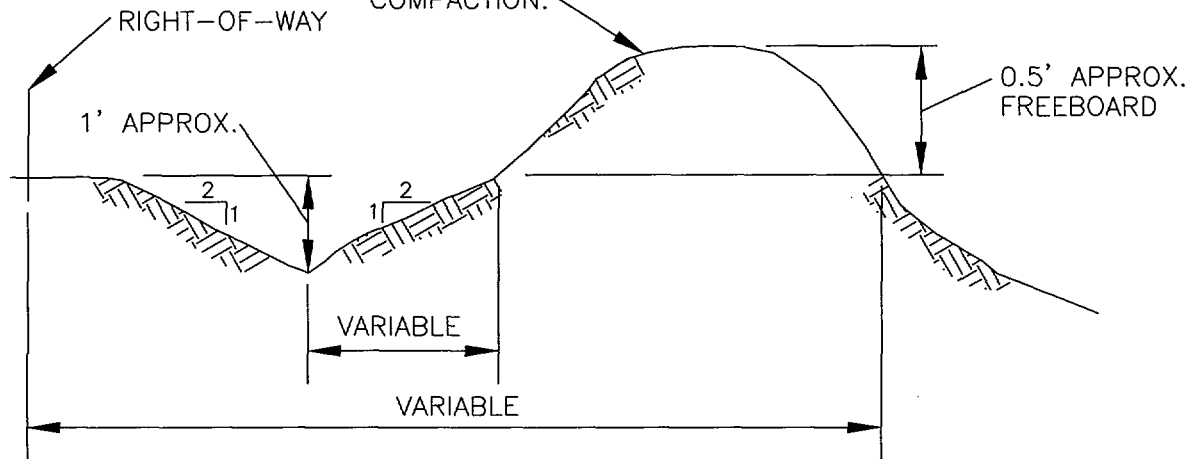
DESIGN MODIFICATIONS FOR
LIBBY ASBESTOS SITE

EROSION CONTROL PLAN
TYPICAL HAY BALE INSTALLATION
FOR WIDE CHANNELS

FIGURE G-4

JUNE, 2000

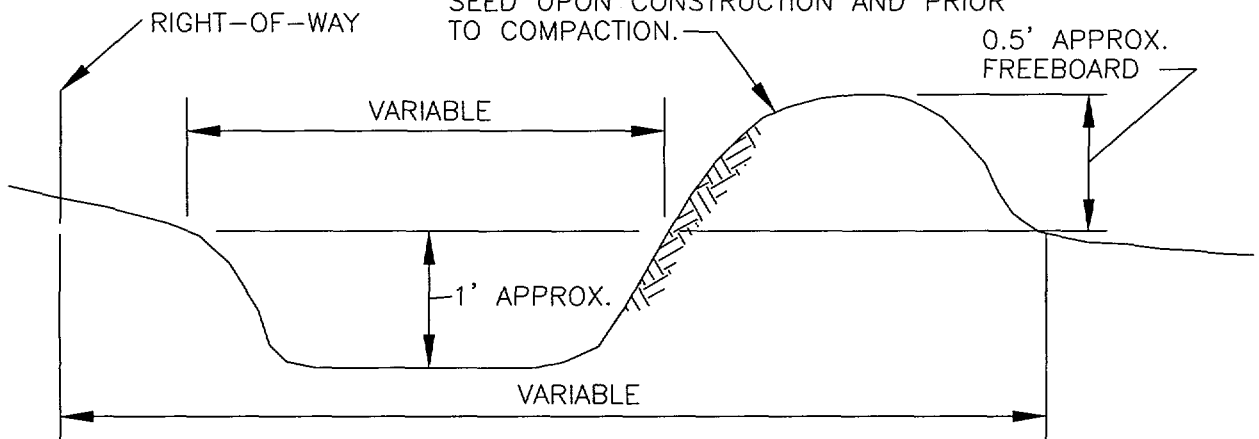
DENSITY TO THE SATISFACTION OF THE ENGINEER. EXCAVATION FROM CONTOUR DITCH MAY BE PLACED ON DOWNSLOPE SIDE AND SHAPED TO FORM A DIKE TO INCREASE THE DITCH CAPACITY. EROSION CONTROL SEED UPON CONSTRUCTION AND PRIOR TO COMPACTION.



TYPICAL V-DITCH

NOT TO SCALE

EXCAVATION FROM CONTOUR DITCH MAY BE PLACED ON DOWNSLOPE SIDE AND SHAPED TO FORM A DIKE TO INCREASE THE DITCH CAPACITY. EROSION CONTROL SEED UPON CONSTRUCTION AND PRIOR TO COMPACTION.



TYPICAL FLAT-BOTTOM DITCH

NOT TO SCALE

W.R. GRACE & CO.

DESIGN MODIFICATIONS FOR
LIBBY ASBESTOS SITE

RUN-ON DIVERSION
CONTROL

FIGURE G-5

JUNE, 2000

APPENDIX H
DOCUMENTATION CONTROL WORK PLAN

1.0 Introduction

This document presents a Work Plan for activities associated with the control of all documents produced during the project involving the Export Plant removal action. This Work Plan provides the methodology, collection, and Quality Assurance/Quality Control (QA/QC) procedures for tracking documents related to and generated during the execution of the project.

2.0 Document Control

2.1 Security and Document Release Procedure

Only the QA/QC manager and PjM will have access to all files (original and copies). These individuals will retain the key able to lock and unlock the secure area where files will be stored.

The QA/QC manager and PjM are the only individuals authorized to release documents to internal or external persons. Release will require written approval by the WR Grace Coordinator. A transmittal letter from either of those individuals stating the approval of the document release must accompany each document release.

2.2 Responsibilities Related to Document Control

2.2.1 QA/QC Manager

The QA/QC manager is responsible for the security of all files (original and copies). As stated in Section 2.1, only this individual and the PjM have a key able to lock and unlock the file storage area.

At the beginning of each day, the QA/QC manager will distribute log books to the appropriate field managers who are also on site. At the end of each day, the QA/QC manager will retrieve the log books from the field managers. After the log book pages have been assigned document control numbers, copied, and filed (see Section 3.2), they will be locked in the secure storage area with the other files.

The QA/QC manager will assign document control numbers to all documents produced (see Section 2.3). After document control numbers are assigned, each document will be entered into a database (see Section 2.4). The QA/QC manager will also be responsible for generating

various reports related to the document control database, as specified by project management individuals.

2.2.2 Project Manager

With respect to document control, the PjM will have authorization to release documents as stated in Section 2.1.

2.2.3 Field Managers

The field managers are the following persons: construction manager, site supervisor/SSHO, abatement manager, and traffic control manager. These individuals will have the responsibilities related to document control as noted below.

Each field manager is responsible for retrieving the appropriate log book at the beginning of each workday from the QA/QC manager. Throughout the day, the log book will be filled out according to Section 3.0. When a form is required, it should be stamped into the log book and completed (see Section 3.1). At the end of the workday, when the field manager returns the log book to the QA/QC manager, any corrections requested by the QA/QC manager will be made by the field manager as outlined in Section 3.2.

2.2.4 Offsite Personnel

Any original documentation generated between off-site personnel will be forwarded to the QA/QC manager in order for it to be properly filed according to this Work Plan.

2.3 Document Control Number System

Each piece of paper produced during the project will be assigned a document control number using a stamp depicted in Figure H-1. The document control number will have the following format: project #.log#.file code.document #.

URS
Project No. _____
Building No. _____
File Code. Doc No. _____

Figure H-1. Document Control Stamp

2.3.1 Project Number

The project number is assigned by URS Corporation (URS).

2.3.2 Building Number

The building numbers are assigned as follows:

- 01 = Pole Barn;
- 02 = Old Vermiculite Storage Warehouse;
- 03 = Large Lumber Warehouse;
- 04 = Operating Planer Shop;
- 05 = Small Shed;
- 06 = Building Slab (still to be located); and
- 07 = Soil Removal.

2.3.3 File Code

Figure C6-2 illustrates the various categories for which file codes will be assigned. The subcategories listed under the categories may be added or deleted as deemed necessary by the QA/QC manager.

2.3.4 Document Number

The document number will be assigned by the document control database as a sequential number based on the order in which documents are entered.

2.4 Document Control Database

The QA/QC manager is in charge of tracking all documents produced. Hardcopies of documents, access, and inventory are controlled by the QA/QC manager and the PjM.

Upon entering each day's set of documents into the filing system, the log for each file will be updated. If items are released, a transmittal document will be utilized for information and tracking.

Figure H-2. Standardized Filing System for Environmental Services Performed at the WR Grace – Libby, Montana Site

Contract No. _____

URS Project No. _____

1.0 ADMINISTRATION	2.0 QAQC	3.0 CORRESP/MEMOS/FAX/TELECONS
1.0 Contract 1.1 Project set-up 1.2 Statement of Work 1.3 Work Plan/Appendices 1.4 Organization Chart 1.5 Schedules 1.6 Budgets/Insurance/Permits/Bonds 1.7 Disputes/Claims 1.8 Conflict of Interest 1.9 Miscellaneous	2.0 Client Reviews/Comments/URS Responses 2.1 Ind. Peer Review (IPR)/Responses 2.2 Lab Audit Reports/Responses 2.3 Site Audit Reports/Responses 2.4 Data Validation Requests/Corresp./ Reports 2.5 Audit Schedule 2.6 Project QA Plans-Combined Forms 2.7 Miscellaneous	3.0 URS/W.R. Grace 3.1 W.R. Grace/URS 3.2 URS/URS 3.3 Subcontractor/URS 3.4 URS/Subcontractor 3.5 EPA/URS 3.6 URS/EPA 3.7 Labs/URS/ 3.8 Meeting Minutes/Agenda 3.9 Misc./Transmittals
4.0 HEALTH & SAFETY	5.0 NON-URS & REFERENCE INFO	6.0 PROJECT DELIVERABLES/REPORTS
4.0 H&S Draft/Review 4.1 H&S Plan 4.2 Monitoring Plan 4.3 Monitoring Logs/Summary 4.4 Accident Reports 4.5 Monitoring Results 4.6 Training/Certification 4.7 H&S Reports 4.8 H&S Correspondence 4.9 Miscellaneous	5.0 News, Magazines Articles 5.1 Maps 5.2 Data Summaries 5.3 Old Reports (other companies) 5.4 Releases 5.5 Photos 5.6 Non-URS Reports 5.7 Background Info. 5.8 ROD Amendments 5.9 Miscellaneous	6.0 Worksheets 6.1 Data Tables 6.2 Progress Reports 6.3 Draft/Final Reports 6.4 Final Reports (ROD, BRA, RI/FS, ARAR, Substantial Completion Report) 6.5 Specifications 6.6 Designs 6.7 Disks 6.8 Miscellaneous
7.0 CONSTRUCTION/DESIGN	8.0 FIELD	9.0 SUBCONTRACTING
7.0 Design Documents/Plans 7.1 Cost Estimates 7.2 Plans/Drawings 7.3 Manuals/Specification 7.4 Addendum to Specifications 7.5 Bid Documents 7.6 Miscellaneous	8.0 Field & Instrument SOPs 8.1 Calibration and Maintenance Records 8.2 Permits/Consent for Access 8.3 Survey Data 8.4 Photos/Maps 8.5 Change Orders/Change Order List 8.6 Log Book/Inspection Reports/Log List 8.7 Sampling and Analysis Plan 8.8 Field Orders/Non-Conformance Reports 8.9 Miscellaneous	9.0 Contract/Agreement 9.1 Contract Modifications 9.2 Contract Invoices
10.0 LABORATORY (SAMPLES)	11.0 COMMUNITY RELATIONS	12.0 FIELD FORMS
10.0 Preliminary Lab Results 10.1 Lab Data Report 10.2 Lab SOP's 10.3 C-of-C/Freight/Air Bills/Freight 10.4 Lab Support Documents 10.5 Sample Control Log 10.6 Lab Scheduling 10.7 Waste Profile Sheets 10.8 Analytical Support Docs 10.9 Miscellaneous	11.0 Presentation Materials 11.1 Schedules/Minutes of Meetings 11.2 Mailing Lists 11.3 Miscellaneous	

2.5 Filing

2.5.1 Field Documents

2.5.1.1 Daily

There will be a separate filing system consisting of folders having headings corresponding to days of the week worked (i.e., Monday, Tuesday, Wednesday, etc.). After all field documents are received by the QA/QC manager, a copy will be made and stamped as "COPY." The COPY will be filed in the appropriate day's folder.

2.5.1.2 Weekly

At the end of each workweek, the daily folders will be shipped to the PjM for review of the week's activities and permanent filing.

2.5.2 Other Filing Categories

The same procedures will be used for filing documents that fall into the following categories (see Figure C6-2):

- Administration;
- QA/QC;
- Project correspondence;
- Health and safety;
- Non-URS and reference information;
- Project deliverables;
- Construction/design;
- Subcontracting;
- Laboratory; and
- Community relations.

When the QA/QC manager receives a document, it will be assigned a document control number. The document will then be copied and distributed if needed or filed. The original will be stamped as "ORIGINAL," while any copies made will be stamped as "COPY." The original version will be filed where appropriate, according to the document control number system. With regard to e-mail, it will be electronically forwarded to the QA/QC manager, who will print it out and treat it as any other document related to the project.

3.0 Logbook

Each logbook will have pre-printed, consecutively number pages and dimensions of approximately seven inches by 12 inches. The following individuals will be responsible for their own log books:

- Project Manager;
- Construction Manager;
- Abatement Manager;
- Traffic Control Manager; and
- Health and Safety Manager.

The following items are required to be recorded in permanent ink in each log book each workday:

- Initials and date at the top of every page;
- Start time;
- Weather;
- Decontamination methods (a previous day's method may be cross-referenced if it is identical);
- Personnel present on site;
- PPE level;
- Each entry will have the signature of the individual recording information;
- Equipment and/or procedures used;
- Sample descriptions (time, depth, volume, containers, preservatives, etc.);
- QA/QC samples (field and laboratory);
- Observations;
- Field parameters;
- Maps and photos drawn or taken (and description);
- Lost/voided paperwork; and
- Time of each entry.

The following items are suggested to be included in the log book:

- Serial and model numbers on equipment used;
- Formulas, calculations, etc.;
- Useful phone numbers; and
- Site address.

Any deviations from planned procedures (and reasons for deviation) should be recorded in the log book. If a page is accidentally left blank or there is unused space at the end of a day's entry, draw a diagonal line through the space and initial and date the line. There should be no erasures in the field log books; errors should be crossed out, initialed, and dated.

3.1 Forms

To reduce the amount of loose paper accumulated during the project, the following forms needed to complete the fieldwork will be made into rubber stamps in order to include them in the log books (Appendix A):

- Daily Log;
- Daily Sign-In;
- Containment Log;
- Construction Safety Meeting Report;
- Supervisor's Incident Investigation Report;
- Supervisor's Incident Investigation Follow-Up Report;
- ACandS Respiratory Protection Fit Test Record;
- Confined Space Entry Permit;
- Qualified Operator Training Record;
- Information to Employees Regarding the Removal of Asbestos-Containing Material;
- Safety Training Record;
- ACandS, Inc. Certified Employees;
- Electrical Ground Test Report;
- Scissor Lift Monthly Inspection Checklist;
- Boom Lift (JLG's) Monthly Inspection Checklist; and
- Heavy equipment daily operating checklist.

When a form is needed, it will be stamped into the log book and completed. Each manager will have control over the necessary stamps needed to document their respective activities.

3.2 Daily Logbook Activity

As stated in Sections 2.2.1 and 2.2.3, the QA/QC manager will distribute log books to the field managers at the beginning of the day, and the field managers will return the log books to the QA/QC manager at the end of the day. Before the field managers are allowed to leave the site, the QA/QC manager must verify the completeness of the log books. The QA/QC manager will record the following items in the log book during his/her review:

- Date;
- Time;
- Signature; and
- Any comments, changes needed, etc.

If needed, the field manager will record the required corrections or changes in the log book as follows:

- Date;
- Time;
- Signature; and
- Changes or corrections made and reasons for doing so.

Any changes will be marked such that it is apparent they were added after the day's activities were completed. After the review is finished, the field manager will sign and date the bottom of the page containing the last entry for that day. The QA/QC manager will assign a document control number to each page of the log book. Each page is copied at least twice, with each copy stamped as "COPY." One copy will be three-hole punched and inserted into either a dedicated binder for that log book or behind a tab denoting that particular log book as a backup in case of misplacement of the logbook. The second copy will be filed in the appropriate "day" folder (see Section 2.5.1.1).

Appendix H-1
Example Field Forms

57 17th Street, Suite 3400
Denver, CO 80202-3841

DAILY FIELD REPORT

(Attach Additional Sheets as Necessary)

Project #: _____

Title & Location: _____

Page 1 of 10

Date: _____

Day: _____

Report #: _____

Revision #: _____

PRIME CONTRACTOR/SUBCONTRACTORS; AREAS OF RESPONSIBILITY AND STAFF:

WEATHER

AM

PM

Condition (CLE, CLO, PT. CLO., R, S)

Wind Direction (From W, E, N, S)

3rd Speed

Temperature (°F)

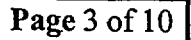
Precipitation

Lost time due to weather

LABOR SUMMARY

[illegible]

* From start date of 6/ /00



**107 17th Street, Suite 3400
Denver, CO 80202-3841**

WORK PERFORMED

[illegible]



Radian

107 17th Street, Suite 3400
Denver, CO 80202-3841

Page 4 of 10

WORK PERFORMED, continued

BUILDING DECONTAMINATION

Area of decontamination:

Type of waste generated (e.g., lumber, pots, etc.)

Waste segregation:

Yards of waste generated (estimate):

Yards of waste staged on-site today:

Yards of waste disposed off-site today:

Number of trucks leaving site:

Capacity of trucks:

Decontamination/containment methods used (e.g., pressure washer, plastic, etc.)

Sampling: (attach COC if possible)

Type	# of Samples	Analysis	Laboratory	Status
TOTAL	0			

Equipment/Material Received Today:

Equipment on Job Site Today (Include hours used today):

Type	# of Hours	Vehicles	# of Hours
TOTAL	0		0



Radian

707 17th Street, Suite 3400
Denver, CO 80202-3841

Page 5 of 10

WORK PERFORMED, continued

BUILDING DEMOLITION

Area of demolition:

Type of waste generated (e.g., insulation, floor tiles, contaminated building materials, etc.):

Waste segregation:

Yards of demolition waste generated (estimate)

Yards of demolition material staged on-site today:

Yards of demolition material disposed off-site today:

Number of trucks leaving site:

Capacity of trucks:

Decontamination/containment methods used (e.g., pressure washer, plastic, etc.)

Sampling: (attach COC if possible)

Type	# of Samples	Analysis	Laboratory	Status
TOTAL	0			

Equipment/Material Received Today:

Equipment on Job Site Today (Include hours used today):

Type	# of Hours	Vehicles	# of Hours
TOTAL	0		0



Radian

707 17th Street, Suite 3400
Denver, CO 80202-3841

Page 6 of 10

WORK PERFORMED, continued

SOILS EXCAVATION

Yards excavated/managed (List estimate of cubic yards of material excavated):

Area of Excavation:

Waste Segregation:

Special Materials Encountered:

Yards staged on-site today:

Yards disposed off-site today:

Number of trucks leaving site:

Capacity of trucks:

Decontamination/containment methods used (e.g., pressure washer, plastic):

Sampling (attach COC if possible)

Type	# of Samples	Analysis	Laboratory	Status
	0			

Equipment/Material Received Today:

Equipment on Job Site Today (Include hours used today):

Type	# of hours	Vehicles	# of hours
TOTAL	0		

URS

Radian

107 17th Street, Suite 3400
Denver, CO 80202-3841

Page 7 of 10

WORK PERFORMED, continued

GENERAL



Radian

**107 17th Street, Suite 3400
Denver, CO 80202-3841**

Page 8 of 10

SUMMARY

Schedule and Performance Status:

Orders, Directives, Notices, Protests:

Additional/Extra Unanticipated Cost Factors:

Conditions Encountered (Subsurface, problems in work performance, etc.):

Delays Encountered:

Visitors on site:

Meetings:

Phone Calls

To:

From:

Regarding:



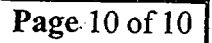
Radian

707 17th Street, Suite 3400
Denver, CO 80202-3841

Page 9 of 10

SUMMARY, continued

Daily Work Description and Comments:



**107 17th Street, Suite 3400
Denver, CO 80202-3841**

[illegible]

APPENDIX I

APPRAISAL AND PROPERTY VALUATION PLAN

1.0 Introduction

The Appraisal and Property Valuation task will be conducted by E. Nelson Bowes, MAI, CRE, PE and J. Virginia Messick, MAI of Denver, Colorado. It is expected that the appraisal will take place during the week of 19 June 2000, with a report of the results completed by 7 July 2000. The appraisal will be conducted on the property known as the Export Plant, within Section 3 and 10, T.30N, R.31W of the Libby Quadrangle in the county of Lincoln. The Export Plant site is approximately 12 acres and is bordered by abandoned athletic fields and the Kootenai River to the north, Burlington Northern railroad tracks to the south and Highway 37 to the east.

The property is owned by the City of Libby. The current tenants on the site are Millwork West Company which operates a lumber planing operation and retail front and a second tenant using a shed for storage. There are five buildings that are used as part of tenant operations and storage facilities. Some open space is used for stockpiles of rough and finished lumber.

2.0 Appraisal Work Scope

All of the property will be itemized including:

- Inventory such as lumber, insulation, nails, miscellaneous building materials, etc.;
- Fixtures such as the planer and scale;
- Equipment such as forklifts, blade sharpeners, etc.; and
- Buildings including their size and type of construction.

All of the items will be valued including the land, buildings, building improvements, machinery as well as inventory. The value will be apportioned to the leased fee and leasehold.

3.0 Report

A report presenting the results of the appraisal and valuation tasks will be prepared within approximately 2 weeks of completion of the field work.

APPENDIX J

DISPOSAL SITE RESTORATION PLAN

**This plan will be prepared within seven weeks
of the final Work Plan approval date as allowed
in the Action Memorandum schedule of deliverables**

APPENDIX K
KEY PERSONNEL RESUMES

Jim Stout
Ray Lidstrom
Jim Larson
Gregory Waldmann
Kathe Powell
Dave Sinkbeil
Lisa Orgera
Peter Pendrak
T. J. Downs
Joseph Wood

General Work Experience:

Mr. Stout has over fifteen years of experience in the Industrial Hygiene and Environmental Health fields both in industry and private practice. Mr. Stout's areas of expertise and professional experience include comprehensive industrial hygiene practice; hazard assessment and control; air contaminant sampling, evaluation and control; hazardous material management; health and safety; environmental site assessment; asbestos identification and control; lead identification and control; and asbestos/lead abatement management and air sampling.

Specific Project Experience:

- ***Project Manager for the DPR/Intel Building*** in Colorado Springs. Conducted hazardous surveys, produced bid documents and specifications, wrote the project design and is overseeing abatement and air monitoring at the Intel building.
- ***Senior Industrial Hygienist for ATC Environmental***. Developed and implemented a variety of comprehensive industrial hygiene programs, including emergency response operations, employee health and safety program, health and safety training programs including Asbestos Awareness, Lead Awareness and Hazardous Material Training.
- ***Project Manager for F.E. Warren AFB***. Provided project management duties during a series of numerous asbestos assessment surveys, generated reports/developed Operation and Maintenance (O&M) plans, project air monitoring and on-site analysis.
- ***Project Manager for Public Service Company of Colorado***. Performed project management for asbestos survey and project air monitoring for several power plants in Colorado, Michigan and Ohio.
- ***Project Manager for Ohio University***. Performed asbestos survey of Ohio University campus, project design for asbestos removal and Operations and Maintenance plan.
- ***Project Manager for Sioux Fall Public Schools***. Performed asbestos re-inspection of all buildings within the school system.
- ***Project Manager for Lockheed Martin***. Performed asbestos surveys of several buildings, project management, project air monitoring and project design.
- ***Project Manager for ITT Sheraton in Boston, Massachusetts***. Performed asbestos survey, generated assessment reports, project design, asbestos air monitoring and on-site analysis, during a multi-phase renovation of the ITT Sheraton Bal Harbor Resort in Florida.
- ***Project Manager for Presbyterian/St. Luke's Hospital***. Performed asbestos and lead survey, generated assessment reports, project design and bid documents. Conducted a complete asbestos inspection of Presbyterian/St. Luke's Hospital prior to demolition. Inspection was complex because of its size and many hidden chases. Also produced project design for abatement.
- ***Project Manager at Mercy Medical Hospital***. Conducted a complex asbestos and lead survey, produced a project design. Building was occupied at the time of the inspection.
- ***Project Manager at Western Farm Bureau Building***. Conducted a complete asbestos and lead inspection, produced a project design.

- ***Project Manager for IT/OHM Corporation at Cinderella City.*** Asbestos removal. Also provided air monitoring and PLM sampling as needed. The building is in the process of being demolished.
- ***Project Manager at Pueblo Chemical Depot.*** Conducted several asbestos surveys at several sites on the Army Depot in Pueblo, Colorado. Produced project designs and performed project management and air monitoring for two major projects, including a 4-story abandoned steam plant.

Chronological Work Experience:

3/00-Present	Senior Scientist, DPR, Colorado Springs, CO
1994-Present	Senior Industrial Hygienist, Dames & Moore/Radian/URS, Denver, CO
1994-1996	Trainer, Environmental Training Center (ETC), Denver, CO
1984-1994	Senior Industrial Hygienist, ATC Environmental, Denver, CO

Education:

MS, Science, 1967
BS, Science, 1963

Registrations and Certifications:

- AHERA Practice and Procedures, South Dakota State, 1988
- Operations and Maintenance, LA University, 1988
- AHERA Inspection and Assessment, Rocky Mountain Center for Occupational and Environmental Health, 1989
- AHERA Management Planning, Rocky Mountain Center for Occupational and Environmental Health, 1989
- Sampling and Evaluating Airborne Asbestos, Dust-NIOSH 582, 1989
- AHERA Project Design, ATC Environmental, Inc., 1992
- Lead Inspection, ATC Environmental, Inc., 1994
- Lead Awareness, ATC Environmental, Inc., 1995
- XRF Lead Detection, State of California, 1995
- Trainer, Certified by State of Colorado, 1994

Education

Mechanical Engineer Degree, 1962, Stevens Institute of Technology, Hoboken, NJ.
Management Courses: Union-Management Negotiations, Professional Project Scheduling and Management

Professional Registrations/Certifications

Experience

Various Positions, Radian International LLC, Denver, CO, 1988-Present.
VP and Deputy General Manager Eastern Operations, Present.
VP and General Manager NE Operations, 1990-Present.
Director NE Operations, 1990.
Director of Remediation, 1988-1990.
IT Corporation, Various Positions, 1984-1988:
Director of Business Development, 1986-1988
General Manager-Northeast Region, 1984-1986
American Can Company, Various Positions, 1962-1984:
Director of Engineering and Construction, Tinmet Corporation, 1981-1984
Director of Engineering and Construction, MRI Corporation, 1979-1981
Manager of Engineering, Americology Division, American Can Company, 1973-1979
Plant Manger, M&T Chemicals, Matawan, NJ, 1971-1973
Plant Manger, M&T Chemicals, Tampa, FL, 1968-1971
Plant Engineer, M&T Chemicals, South San Francisco, CA, 1965-1968
Project Engineer, M&T Corporation, Rahway, NJ, 1962-1965

Fields of Experience

Responsible through direct performance and staff oversight for remedial investigations, services, construction projects and treatment plant operations for Radian International's Northeastern Remedial Design and Construction Offices, and overseeing operations in the eastern half of the U.S. Experience includes administration; engineering management; and direct supervision of RI/FS, design, remedial implementation, construction and facility operations for a broad range of industrial and USACE applications. Yearly regional revenues exceed \$30 million. Total staff and hourly labor responsibility to 150.

[IT Corporation, Various Positions, 1984-1988:]

Director of Business Development, 1986-1988

General Manager-Northeast Region, 1984-1986

- Regional Administrator of major projects, service operations, and business development for Field Services and Project Management Operations. Projects and services included facility decontamination, decommissioning, marine service, demolition, emergency response, routine

hazardous cleaning and maintenance, and site closures. Projects ranged to \$15 million, with individual staff sizes in excess of 75.

- Environmental remediation services for federal, state, and privately funded commercial accounts under long-range maintenance contracts. Services operations included warehousing, safety and health, accounting and base operations with a staff of 40.
- Responsible for proposals, estimates, scheduling, private client and government contracts, subcontracts, and budgeting for fixed price and cost-reimbursable work.

[American Can Company, Various Positions, 1962-1984:]

Director of Engineering and Construction, Tinmet Corporation, 1981-1984

Director of Engineering and Construction, MRI Corporation, 1979-1981

Manager of Engineering, Americology Division, American Can Company, 1973-1979

Plant Manager, M&T Chemicals, Matawan, NJ, 1971-1973

Plant Manager, M&T Chemicals, Tampa, FL, 1968-1971

Plant Engineer, M&T Chemicals, South San Francisco, CA, 1965-1968

Project Engineer, M&T Corporation, Rahway, NJ, 1962-1965

- Broad range of services performed for divisions and subsidiaries throughout the U.S., Canada, and Mexico. Services included management; contracting; coordination of subcontractors; budget planning; direction of engineering; operation of waste treatment, recycling, chemical and electrical/mechanical manufacturing facilities, and project engineering.
- Experienced administrator with a broad range of industrial and remedial applications in design, investigation, construction management, and facility operations.
- **[Program Director, Kansas City District PRAC, Contract DACW41-94-D-9010, Various Locations, \$50 Million over contract period (base year and four option years). June 1994-Present:]** Contract is a renewal for Kansas City PRAC DACW41-89-R-0189 for CEMRK's Military Programs boundary, plus USEPA Regions II and VII. Activities being negotiated for each Delivery Order, fixed price and cost negotiated.
- **[Program Manager, Operate Remedial Treatment System, Gloucester County, New Jersey, Contract DACW41-94-9014 (base year and four option years). Cost reimbursable/fixed fee. May 1994-Present:]** Contract effective January 1995. Activities include overall administration, including personnel selection and subcontracts. Project encompasses all O&M and laboratory activities for Lipari Landfill (NPL Site No. 1), 250 gpm flush and treat groundwater system. Operations include metals precipitation, air stripping, thermal destruction of volatiles, water phase GAC, and sludge removal and disposal.
- Responsibilities include overall administration of O&M operation for 125 gpm groundwater pump and treatment facility, including management, labor, facilities and materials for fixed price operation of facility and unit price Work Orders for engineering services for upgrades and services.
- Activities include personnel selection, negotiation of fixed price and reimbursable, cost negotiated, fixed fee projects for various Delivery Orders. Projects included investigation,

remedial removal, pump and treat plants, tank removals, landfill cap, treatment plant operation and laboratory operations; performed peer review and coordination of project and construction managers to ensure cost and schedule compliance. Sites include: 200-acre Roebling Steel Facility, Roebling, NJ; GSA Expansion, Camden, NJ; Griffiss AFB, Rome, NY; Fort Drum, Watertown, NY; Sage Facility, Syracuse, NY; Plattsburgh AFB, Plattsburgh, NY; Lipari Landfill, Glassboro, NJ; Helen Kramer Landfill, Mantua Township, NJ; and Bog Creek Superfund Site, Howell Township, NJ.

- Radian International was the general contractor for the Lone Pine Landfill Superfund Site. Work included management and public presentations relating to permits and progress. Project included design and installation of a 65-acre landfill cap of bentonite-impregnated mat and VLDPE, slurry wall, groundwater extraction system, UST and drum removal, three mile force main, water treatment plant, gas extraction and flare plant, 80-acre offsite groundwater field investigation, wetland investigation, cultural and historical resources assessment, design of treatment facilities, treatability studies, and permitting.
- At the Tyson's Superfund Site, provided project management of design, construction, startup, and two year operation of 500-gpm groundwater AQUADETOX vacuum steam stripping treatment facility and solvent recovery. Project value: \$6 million.
- Managed source field investigation, design, construction, and startup of process water collection, diversion and treatment facility; collection sumps, 2,000 foot waste and process sewer installation, pump station, storage tanks, dual train - 1,200 gpm each air strippers, granular activated carbon steam regeneration system, and solvent recovery. Project value \$6 million.
- Managed eight municipal, one federal, and two private industry Toxic Catastrophe Prevention Act field investigations and permit applications, including operation manual preparation per the Act for chlorine and TDI (toluene 2,4 Di-isocyanate).
- Lagoon closure consisted of solidification/stabilization, borrow pit operation, 70,000 square foot slurry wall, and RCRA 7-acre cap of clay, HDPE, flow membrane, and earth cap. Project value: \$6 million.
- Complete manufacturing facility RI/FS, including buildings, equipment, subsurface; and 5 miles of river sediment; offsite investigation of residences, streets, and related storage yards (over 2,000 samples); remediation of all offsite locations by demolition, excavation, and decontamination or return of solids to manufacturing plant for storage, storage maintenance. Structural metals were decontaminated.
- Field investigations of two drum burial sites, excavation, disposal of PCB-laden drum carcasses and over 25,000 cubic yards of soil.
- Responsible for site closure, including 40,000 cubic yards of hazardous lagoon sludge solidification (lead contaminated) and offsite disposal, 24-acre site investigation, resultant 20,000 cubic yards soil disposal, building decontamination, UST remediation, 500,000-gallon fuel oil tank removal, asbestos removal and demolition, state approvals, variances, and monitoring.

- For 60,000 yd³ special waste disposal in Indiana, and site remediation activities and site closures in Arizona, Maryland, New Mexico, and New Jersey.
- Lagoon sludge removal by dredging, centrifuging for water reduction, waste solidification, and disposal.
- For Special Waste Projects, included contaminated water collection system and 3-acre double lined (HDPE) impoundment, Tampa, Florida. Waste (refuse recovered metals) shredding and continuous organic washing system design and installation (25 ton/hr), Florida. Leachate sub-surface cut-off wall installation, California. Design, construction, and startup of metal precipitation-removal, caustic neutralization, cyanide destruction system, Tampa, FL. Work included obtaining NPDES discharge permit with bioassay requirement for discharge to recreational waters.

Other Training

Certified Emergency Response (Levels Training A, B, and C)
Certified Hazardous Material Categorization
Certified Hazardous Material Transportation
40-Hour OSHA Health and Safety Training
Certified CPR and First Aid

Publications

General Work Experience:

Mr. Larson has over twenty years of experience in industrial hygiene, occupational safety, and environmental health. His consulting experience ranges from field work to management of projects for industrial clients, hazardous waste operations, construction projects, and Department of Defense (DOD) and Department of Energy (DOE) facilities. As a Regional Health and Safety Manager, Mr. Larson oversees implementation of the health and safety program for Radian Remediation and Operational Services Western Region offices and field projects. He develops safety and health programs, provides training, develops and reviews safety and health plans for hazardous waste and construction operations, conducts internal health and safety evaluations of offices and projects, and performs incident investigations. Mr. Larson has been Consulting Unit Manager for Dames & Moore Occupational Health and Safety Services Group responsible for business development, proposal preparation, and project management for industrial hygiene and occupational safety-related projects.

Specific Project Experience:

Industrial Hygiene and Occupational Safety

- Consulting industrial hygienist to a film manufacturer in Colorado, performing chemical air sampling of operations.
- Ventilation surveys of parts cleaning and electroplating operations at an airline maintenance facilities in Denver and Los Angeles.
- Conducted a noise survey and developed a hearing conservation program for an oil and gas production unit in Wyoming.
- Indoor air quality investigations for financial institutions, schools, municipalities, and office buildings.
- Confined space evaluation and inventory for a federal postal facility in Colorado.

Regulatory Compliance

- Development of computer-based occupational safety and health training modules for aerospace client.
- OSHA compliance audit and safety and health training for a mining Superfund site wastewater treatment plant in Colorado.
- Laboratory health and safety audit, hazard communication training, and health and safety standards review for an oil refinery in Louisiana.
- Health and safety compliance audit for a municipality in Idaho covering wastewater treatment plants, fire, police, and parks and recreation departments, and transportation facility.
- OSHA compliance audit and chemical air sampling for a can manufacturing plant in Colorado.
- Developed occupational safety and health assessment procedures, assessment criteria, and performance measures for DOE assessments of integrating contractor's safety and health programs and operations.

- Assessment of DOE contractor Occupational Medicine Program at Rocky Flats.
- Occupational safety and health audits for transportation districts and manufacturing facilities.
- Assessment of DOE contractor industrial hygiene program at Yucca Mountain, with emphasis on silica exposure, respiratory protection, and noise.
- Environmental, industrial hygiene, and safety inspections and audits of Louisville, Colorado plant site and off-site facilities.

Health and Safety Policies and Programs

- Developed hazardous substance health and safety specifications for U.S. Postal Service construction project.
- Developed health and safety programs, hazard analyses, standard operating procedures, and plans for URS, Radian, and Dames & Moore hazardous waste and construction-related field projects.
- Served as Occupational Safety Area Lead, developing and tracking work assignments for support service contractors, planning and coordinating contractor activities with DOE, and reviewing contractor work products.
- Technical review of safety and health-related documents including DOE orders, Rocky Flats Instructions, health and safety plans, Integrated Safety Assessments, Preliminary Hazard Assessments, and Operational Safety Analyses.
- Technical support to liquid and solid residue stabilization activities at Rocky Flats including participation in the RFFO System Management Team and support to restart activities and the Operational Readiness Review for resumption of tank draining activities.
- Developed Rocky Flats workplace violence policy and procedures.
- Developed Occupational Safety and Health Risk Assessment Technical Instruction in support of RFFO's Risk Assessment Policy and Comprehensive Risk Assessment.
- Developed hazardous material management plans for lead, asbestos, and petroleum contamination for state Department of Transportation projects.
- Developed emergency action plans and evacuation procedures for industrial plants and office buildings.

Hazardous Waste/Material

- Developed decommissioning and decontamination closure plans related to hazardous chemicals for a computer manufacturer in Colorado and Arizona.
- Developed decommissioning and decontamination specifications related to asbestos and hazardous chemicals for a plating shop, and a research laboratory in Colorado.
- Asbestos surveys and bulk sampling for property owners in Colorado.
- Asbestos abatement project oversight and air sampling for building owner in Texas.

- Health and safety support including health and safety plan development, compliance audits, air monitoring, and serving as Site Health and Safety Officer on hazardous waste investigations and remediations including:
 - On site CIH support to Chemical Waste Landfill remediation, Sandia National Labs, New Mexico;
 - Site Health and Safety Officer for Rocky Mountain Arsenal South Plant building demolition, Work Packages 2 and 4;
 - Project Safety and Health Manager for U.S. Army Corps of Engineer projects McChord AFB, Ft. Lewis, Ft. Lawton, Washington; Indian Mountain, Alaska; Ft. Shafter, Hawaii; and Nellis Air Force Base, Nevada;
 - Project Safety and Health Manager for U.S. Air Force Projects at Fairchild AFB, Washington, and Hickam AFB, Hawaii;
 - Project Safety and Health Manager for U.S. Navy fuel tank rehabilitation at Pearl Harbor and Redhill Hawaii;
 - Project Certified Industrial Hygienist for Utah Transit Authority Light Rail Project contractors for work involving hazardous material;
 - Project Certified Industrial Hygienist for Colorado Department of Transportation contractors on projects involving hazardous material;
 - 40-hour training to personnel at a petrochemical waste Superfund site in Baton Rouge, Louisiana;
 - Site Health and Safety Officer, performing project health and safety oversight and air monitoring during Level B investigative drilling and sampling on a Superfund site in Torrance, California, contaminated with benzene, polynuclear aromatic hydrocarbons, and reactive sulfides;
 - Health and safety plan development for investigations of Superfund sites in Missouri and Kansas contaminated with heavy metals from mining;
 - Training and health and safety audits for a former smelter Superfund Site in Idaho;
 - Site health and safety officer for remediation of a former coal gasification plant site in Utah;
 - Air monitoring and safety and health audits of former mining Superfund sites in Colorado; and
 - Developed health and safety procedures, conducted industrial hygiene air monitoring, and provided sampling and oversight of removal and disposal of lead-based paint and petroleum contaminated material for Colorado Department of Transportation projects.

Safety and Health Training

- Conduct 10-hour OSHA carded Construction Safety Training for Radian personnel.
- Conducted URS Health and Safety Management Program training for Radian International personnel.
- Developed and implemented the chemical hazard communication training program for Dames & Moore office personnel.
- Developed hearing conservation and hazard communication training manuals for a telecommunication company in Colorado.

- Over 1,500 hours of Hazardous Waste Operation training for URS, Radian, Dames & Moore personnel, and clients.
- Process safety and confined space training for a Colorado municipality.
- Hazardous material transportation training for a laboratory in Colorado.
- Technical assistance and training to safety committees and hazardous material teams.

Chronological Work Experience:

5/99-Present	URS Construction Services Division, Radian Remediation and Operational Services Western Regional Health and Safety Manager, Denver, Colorado
1996-1999	Senior Industrial Hygienist, Regional Health and Safety Manager, Dames & Moore Denver, Colorado
1994-1996	Senior Industrial Hygienist, Science Applications International Corporation (SAIC) Technical Support Services Team to The Department of Energy (DOE) Rocky Flats Field Office (RFFO), Golden, Colorado
1992-1994	Senior Industrial Hygienist, Walsh Environmental Scientists and Engineers, Boulder, Colorado
19886-1992	Staff, Project, and Senior Industrial Hygienist, Dames & Moore, Denver, Colorado
1986-1988	Safety/Environmental Specialist and Corporate Industrial Hygienist, Storage Technology Corporation, Louisville, Colorado

Education:

M.S., Environmental Health/Industrial Hygiene, Colorado State University, 1988.
B.S., Zoology, University of Rhode Island, 1978.

Registrations and Certifications:

- Certified Safety Professional (Management Aspects), 1993 (SN 11308).
- Certified Industrial Hygienist, 1990 (CP 4952).

AREAS OF EXPERTISE

Project Management

Environmental Compliance
Audits ECAS/ECAP/OSHA

EIS/EA

Environmental Permitting

Ecological Risk Assessment

CERCLA/RCRA/ NEPA
Studies

Wildlife Biology

Radon

Asbestos

Education

B.A., Zoology, 1988

Professional History

Woodward-Clyde, Assistant
Project Manager, 1990 -
Present

Accu-Labs Research Inc.,
Radiochemist, 1989 - 1990

University of Wisconsin -
Eau Claire, Researcher, 1988

Affiliations

The Wildlife Society

The Ecological Society

REPRESENTATIVE EXPERIENCE

Mr. Waldmann is currently a Project Manager with URS Corporation, and has professional experience in project management, environmental compliance audits, environmental permitting, natural resource management, ecological risk assessment, habitat assessment, and applied studies in wildlife biology. He is certified by the Ecological Society of America as an Associate Ecologist and listed within the EPA Radon Proficiency Program and Colorado Asbestos Building Inspector Program. Project experience includes environmental compliance assessments, baseline biological studies, environmental assessments (EAs), and environmental impact statements (EISs) for hazardous waste and solid waste projects, threatened and endangered species surveys, wetlands and land use evaluations, hazardous waste remedial investigations, and site assessments. Some specific assignments and work performed include the following:

- Performed as field team leader administering 14 Environmental Compliance Assessment Protocols (ECAP) and assisted with OSHA Protocols on over 400 Federal Aviation Administration (FAA) facilities located throughout Alaska and approximately 100 facilities in central Colorado. Functioned as the client representative having direct communications with FAA program management on corrective alternatives and associated costs for facilities in noncompliance.
- Administered an Environmental Compliance Assessment System (ECAS) on three Army Installations in Alaska comprising more than 1,350,000 acres, as an authority in natural and cultural resource management. Corrective alternatives and associated costs were detailed for facilities in noncompliance.
- Performed as field team leader conducting Environmental Compliance Audits on ten U.S. military installations in Europe. Protocols evaluated included: Hazardous Waste, Hazardous Materials, Solid Waste, Natural Resources, Cultural Resources, Environmental Effects Abroad, and Noise. The root cause for facilities in noncompliance was identified and corrective alternatives and associated costs were proposed.
- Performed as a principal investigator and author for the 1995 Base Realignment and Closure Program (BRAC) of two active U.S. Army installations. I evaluated each installation using each of the 19 ECAS Protocols in developing an environmental baseline survey. I was the primary point of contact for the client and directed staff to the appropriate reference materials during field investigations and document preparation. This effective method of management decreased document preparation costs 50 percent and ensured document accuracy.

- Designed and managed an environmental evaluation survey and report for a proposed telecommunication facility within the White River National Forest in western Colorado.
- Performed internal QA audits for three projects at a Department of Energy (DOE) facility in Colorado. Compliance with Sampling SOPs and DQOs were emphasized. Reported directly to the Operations Manager for all issues of non-compliance and corrective actions were proposed.
- Developed Natural Resource Management Plans and EAs for three U.S. Air Force bases and fifteen long-range radar facilities in Alaska to comply with NEPA. Documents supported military mission, cooperative agreements with state and federal agencies, use of military personnel, protection of natural resources, and interests of local communities.
- Managed a radon gas survey project for 11 U.S. Marine Corps installations throughout Okinawa, Japan. Coordinated logistics for a 20-person field team to place and retrieve approximately 15,000 radon detectors. Established an on site laboratory and implemented a QA/QC program which met all EPA regulation criteria.
- Managed six field crews for a threatened and endangered species survey on 5,000 acres in Central Utah proposed for oil and gas development. Presented to the U.S. Fish and Wildlife Service an alternate survey methodology which was approved for this project; thereby, reducing survey costs 50 percent.
- Reduced information gathering costs 25 percent by developing a communications network using telephone conferences, which enabled technical information from four consulting firms to be collected and consolidated into 14 SOPs for ecological sampling at a DOE nuclear manufacturing facility in Colorado.
- Streamlined a biota sampling scheme for an ecological risk assessment at a Comprehensive Environmental Response and Liability Act (CERCLA) site in Utah, which enabled staff and sampling time costs to be reduced 20 percent.
- Organized, trained, and supervised individuals and recruited subcontractors to participate in Ecosystem Evaluation Workplan Programs on a CERCLA mining waste site in Colorado totaling \$500,000.

General Work Experience:

Ms. Powell is currently an assistant to the Vice President of the Western Region, URS Radian Remediation and Operating Services. She has significant experience in assisting project managers in tracking costs on projects, invoice review and reconciliation, project set-ups, subcontracts, cost corrections, project closure, project-related purchasing issues (commercial and government projects), negotiating, cost analysis.

She has been responsible for the start-up of five Radian offices. Specifically, she has offered training to new employees, has established new systems within the Radian framework, has had extensive interviewing experience, and has authored and co-authored two manuals relative to project administration and office start-ups. She has also been responsible for two office moves and has assisted in a third.

Ms. Powell has been responsible for coordinating monthly unit sales forecast reports and project performance reports, analyzing profit and loss reports, preparing variance reports, and providing other support on financial issues as needed. She also serves on the training team.

Chronological Work Experience:

1996-1999	Project Administrator and Buyer, Radian International, Denver, Colorado
1989-1996	Office Administrator, Radian International, Denver, Colorado
1988-1989	Other significant work experience includes legal secretary
1971-1974	Co-owner of a country newspaper
1963-1970	High school English teacher

Education:

B.S., Secondary Education with concentrations in English and Spanish, The University of North Texas, Denton, Texas, 1963

Other training:

- Trainer – Interviewing Within the Law
- Trainer – How to Give Interesting Presentations
- Trainer – Radian Purchasing Policies and Procedures
- Trainer – Radian's Invoicing and Accounts Payable Systems
- Trainer – Overcoming Speaker's Anxiety
- Trainer – Timekeeping and DCAA Audits
- Project Management Training
- Procurement Integrity Act
- Ethics Training
- Radian Information Systems
- Buyer's Training
- Time Management

AREAS OF EXPERTISE

- Construction Management
- Mining Reclamation
- Mine Planning
- Remedial Investigation
- Feasibility Study
- Remedial Design

EDUCATION

MS, Mining Engineering,
South Dakota School of
Mines, Rapid City, SD,
1976

BS, Mining Engineering,
South Dakota School of
Mines, Rapid City, SD,
1975

**PROFESSIONAL
HISTORY**

URS Greiner Woodward Clyde,
Lead, SD May
1999 to Present

Atlantic Richfield, Butte,
MT, 1981-1998

Exxon Coal Company,
Gillette WY, 1978-1981

Johns-Manville Corp.,
Lompoc, CA and Antonito,
CO, 1976-1978

CERTIFICATIONS

Professional Engineer
(PE), State of Montana,
#13702PE

Professional Engineer
(PE), State of Wyoming,
#3496

REPRESENTATIVE EXPERIENCE

Mr. Sinkbell has twelve years experience managing Superfund remediation and construction projects related to historic copper mining operations. He also has ten years experience performing various mine planning activities and Professional Engineer certifications of design/construction projects at surface coal mines. He has two years experience at two industrial mineral mining operations.

RELEVANT EXPERIENCE

**Senior Project Engineer, URS Greiner Woodward Clyde,
Helena, Montana Office:**

- Providing engineering/construction management support to both the Denver and Helena offices as required.

**Site Project Manager, URS Greiner Woodward Clyde,
Lead, South Dakota:**

- Supervised a field office for the construction of a \$2MM raise to an existing earth and rock fill dam.

Construction Supervisor, Atlantic Richfield, Butte, MT:

- Directed design and construction of \$1.2MM stormwater diversion system including earthen dam and a series of concrete channels and buried pipe. Supervised subcontractor performing soils and concrete testing, construction staking and as-built surveying. Performed construction contract administration including documentation and reporting of progress, negotiating design changes for approval by Agency oversight personnel, negotiating change orders, processing pay requests and performing claims management and contract close-out.
- Supervised \$2.5MM remediation of 50,000 cubic yards of arsenic contaminated soil using pug-mill. Directed subcontractor performing quality assurance/quality control (QA/QC) testing of the treatment process and preparation of as-built drawings. Performed construction contract administration including documentation and reporting progress, negotiating design changes and change orders, processing pay requests and performing claims management and contract close-out.
- Coordinated development of innovative ex-situ soil stabilization process using pug-mill to treat arsenic contaminated soils. This process allowed treated soils to be

40-Hour OSHA Hazardous
Material Training

24-Hour OSHA Supervisor
Training

Current on MSHA
Experienced Miner
Training

MSHA Certified Dam
Inspector

stored in on-site repository versus a hazardous waste facility resulting in significant cost savings.

- Directed design and construction of \$2.0MM upgrade to potable water distribution system including 300,000 gallon storage tank and 3 miles of buried pipeline. Performed construction contract administration including processing submittals including pay requests, change orders, etc. and directing subcontractor performing QA/QC testing.
- Conducted numerous safety audits of on-going construction projects resulting in zero recordable incidents at sites described above.

Project Manager, Atlantic Richfield, Butte, MT:

- Managed \$6.0MM Remedial Investigation/Feasibility Study (RI/FS) at Berkeley Pit Superfund site. Coordinated Berkeley Pit post-Record of Decision activities including treatment of 4 million gallons/day of acid mine water. Performed all contract administration functions with contractor.
- Managed RI/FS dealing with lead in residential soils including design of sampling and remediation programs for both mining waste source areas and residential yards.
- Directed design and construction of a \$1.0MM wetlands demonstration project for removal of heavy metals from surface and groundwater.
- Managed RI/FS and emergency removal activities at several Superfund sites including Silver Bow Creek and Mt. Pole Plant concerning heavy metals (e.g., lead, mercury, cadmium, copper and zinc) associated with historic mining activities and pentachlorophenol from historic wood treating operations respectively.

Sr. Mining Engineer, Atlantic Richfield, Gillette, WY:

- Provided professional engineer certification of the design and construction of a 1,500 acre-foot stormwater diversion dam and several smaller sedimentation dams. Directed soils and concrete QA/QC testing and preparation of as-built drawings.
- Performed engineering and mine planning duties relating to the daily coal mining and overburden stripping operations at a 24 million ton-per-year surface coal mine using both truck/shovel and draglines.
- Supervised surveying department responsible for meeting day-to-day surveying needs of pit operations including design and construction staking of all coal and overburden haul roads.
- Performed long-range mine planning activities including

calculation of annual reclamation bond and air quality permit.

Sr. Mining Engineer, Exxon Coal Company, Gillette, WY:

- Supervised in-house coal laboratory and coordinated train shipment to maximize revenues and insure customer's coal quality requirements were met.
- Performed various long-range mine planning duties at two surface coal mines.

Mining Engineer, Johns-Manville Corp., Lompoc, CA and Antonito, CO:

- Supervised operations and maintenance crew at perlite mine, mill and loading facilities.
- Performed various mine planning duties at diatomaceous earth surface mine.

General Work Experience

Ms. Orgera has been employed in the demolition and environmental industry for 15 years. She has significant experience on some of the largest asbestos abatement and demolition projects. She has assisted the project manager in developing schedules, tracking equipment usage, developing waste projections and developing operational procedures.

She has worked with client(s) and local agencies ensuring the adherence to work plans, specifications and schedules. She has managed field operations and directed foremen in the daily scheduling of work activities.

Specific Project Experience:

- **Superintendent.** Managed all field operations at the Rocky Mountain Arsenal (RMA) Remediation and Demolition project. Cleveland Wrecking Company (CWC) was tasked with the remediation and demolition of 87 structures and an 8-leg 160 foot tall Water Tower at the RMA. Worked directly with the Project Manager and site engineers to schedule work, waste delivery and remediation schedules. In addition managed up to four foremen and fifteen laborers. The RMA is the only site ever awarded the OSHA VPP Star Status.
- **Foreman.** Operated on multiple projects throughout California, managed up to twenty laborers; was responsible for directing field operations and crew management. Alameda Naval Air Station Oakland, CA. (TURK Contract). Removed and back-filled in excess of twenty miles of fuel lines. Reported to Project Manager.
- **Foreman.** Managed a 20-man crew for the demolition of the Central Freeway in San Francisco. The freeway was damaged during the 1989 earthquake. Penhall was tasked with the demolition of this freeway within a ninety-day performance period. The project was completed on schedule working 12-hour shifts seven days per week.
- **Various capacity.** Managed both demolition and remediation crews (asbestos abatement) of up to thirty men on the San Francisco Opera House seismic upgrade. Worked on multiple specialty demolition projects throughout the Bay Area.
- **Foreman and Superintendent.** Involved in all facets of asphalt installation for highway and road construction, especially grading and paving operations and installation of storm drainage.
- **Foreman.** Fabricated and installed shoring for highway extension projects, following structural damage following the Loma Prieta earthquake. Demolition and clearing experience of roadway debris.
- **Foreman.** Responsible for asbestos crew supervision, daily labor tasking, and production tracking, cost-to-complete estimates; developed material and equipment requirements to continue operations.

Chronological Work Experience:

1999-2000	Superintendent, Cleveland Wrecking Company, Denver, CO
1996-1999	Foreman, International Technology Corporation, Concord, CA

1994-1996 Foreman, Penhall Inc., San Leandro, CA
1990-1994 Foreman, Cleveland Wrecking Company, San Francisco, CA
1989-1990 Laborer, Bay Cities Paving and Grading, Emeryville, CA
1988-1990 Laborer, Valentine Construction Company, San Rafael, CA
1986-1988 Senior Lead Foreman, Bechtel Control Asbestos Management, San Francisco CA

Registrations and Certifications:

- Core Radiological Training
- OSHA 10 Hour Occupational Safety and Health Training
- 8 Hour Supervisor Health and Safety for Hazardous Waste
- 40-Hour Hazardous Waste Operations
- The Brand Companies Inc Personal Development Training

CURRICULUM VITAE

PETER PENDRAK

Title	Staff Hydrologist
Expertise	Surface-Water Hydrology Geomorphology
Academic Background	B.S., Watershed Sciences, Colorado State University, 1995
Experience	Mr. Pendrak conducts hydrologic analysis and surface water quality investigations for water resource and environmental projects. Mr. Pendrak's professional experience includes the following.

Hydrologic Investigations

Conducted hydrological investigations to assess the impact of metal mine drainage and mine waste loading at the Holden Mine in Washington. Responsibilities included a site-wide environmental monitoring program. Surface and groundwater monitoring, manual and automated measurement programs for surface, groundwater, and mine drainage.

Performed hydrological investigations to assess the impact of metal mine drainage and mine waste loading at the Eagle Mine in Colorado. Responsibilities at Eagle Mine include a site-wide automated environmental monitoring program, surface- and ground-water monitoring, automated sampling of rainfall and snowmelt runoff, streamflow measurement, hydrologic and water-quality data analysis. Rainfall-runoff analysis and modeling to determine discharge from ephemeral tributaries utilizing the Santa Barbara Hydrograph method. Participated in development of surface water sampling and analysis program.

Conducted hydrological and meteorological studies at the Batu Hijau mining prospect in Indonesia. Responsibilities include database management and data reductions. Rainfall-runoff analysis and modeling to evaluate curve numbers for undisturbed forested watersheds and probable maximum flood analysis utilizing HEC-1 hydrodynamic model. Participated in development of surface water sampling and analysis program.

Geomorphologic Investigations

Conducted stream segment surveys for use in the HEC-2 hydrodynamic model to determine stream discharges for use in the Snake River Basin Adjudication. Conducted geomorphologic surveys for channel movement, floodplains, terraces, and slope stability. Evaluated stream reaches, collected discharge measurements, and provided a geomorphic overview for watershed influences and channel stability.

Developed and administered recreational surveys on lakes and rivers in north-central Maine. Conducted geomorphologic surveys to determine areas to be impacted by reservoir drawdowns and fluctuating water levels. Also evaluated impacts to soil and vegetation due to water releases on dam-controlled rivers using Geographical Information System (GIS) and remote sensing. Completed a recreation resource

PETER PENDRAK, page 2

inventory and developed a matrix for determining handicap accessibility.

Aquatic Investigations

Served as field team leader in fish-shocking program for fish population monitoring at the Holden Mine site. Participated in benthic community population monitoring.

Participates in fish population monitoring, benthic community population monitoring, and spawning surveys at the Eagle Mine CERCLA site in Colorado.

History	Professional Dames & Moore, Denver, Colorado, 1996 - present Musetter Engineering Inc., Fort Collins, Colorado, 1995 Kleinschmidt Associates, Pittsfield, Maine, 1994
Certifications	Hazardous Waste Site Health and Safety Wilderness First Responder First Aid
Citizenship	United States
Countries Worked In	United States
Language Proficiency	English
Professional Affiliations	American Water Resources Association

CURRICULUM VITAE

T. JOSEPH DOWNS

Title: Project Manager / Contractor Quality Control Manager / Project Electrician

Expertise: Mr. Downs served as base line supervisor for over twelve years at McChord Air Force Base in Tacoma, Washington. Mr. Downs' experience includes management and supervision of basewide underground and overhead power distribution activities, crew supervision, and construction management of both local and federal government projects. In addition, since joining Radian International, Mr. Downs has successfully managed several projects with aspects including: building construction, underground utility installation, site improvements, road and parking area construction, and under and aboveground fuel storage systems removal and replacement. All projects were completed on time and with a satisfied client.

**Experience
With Firm:**

Etter Residence Remediation Project, Medina, Washington – Acted as Project Manager to demolish and remove an abandoned residence and foundation; clean up and remove soil contaminated with petroleum residue; and disconnect utilities. The project scope also included installation of an irrigation system, replacement of a 6-foot high and 100-foot long retaining wall, and placement of over 6,000-square feet of sod, all critical to erosion control and preservation of an existing hillside between the adjacent waterfront and upslope residential properties.

U.S. Air Force McChord AFB, Washington, EC, Upgrade Skimmer, Outfall 28 – Served as Project Electrician to demolish existing pumps, controls, and underground electrical system. Installed three new pumps, controls, 150-feet of underground conduit, secondary power cables, and a new 125-amp, three-phase power panel.

King County International Airport, Northeast T-Hangars, Seattle, Washington – Acted as Project Manager for construction of three pre-manufactured, metal aircraft storage hangars and associated fire protection, site utility, paving, landscaping, and fencing work on the northeast side of Boeing Field, King County International Airport. Responsibilities included contracting and coordination of subcontractors and suppliers, project scheduling, safety inspections and quality control.

U.S. Air Force McChord AFB, Washington, EC Repair Underground Storage Tanks (UST) - Project Manager, Contractor Quality Control (CQC) Manager, and Health & Safety Coordinator in different phases of the project providing installation of twenty underground tanks to include piping, control systems and electronic personnel safety monitoring equipment. Piping ranged from large diameter fiberglass reinforced pipe to 4- and 6-inch welded steel. Fuel systems were for diesel, unleaded fuels and JP-8. Installed a 48,000-gallon aboveground storage system along with dispensing equipment for glycol to be used for the deicing of equipment. All storage systems for fuel were equipped with level sensing equipment and all USTs received leak detection electronics. Some tanks were installed in vaults and required personnel safety equipment. Vaults were equipped with gas detection systems as well as heating and ventilation fans. Mr. Downs was responsible for submittal review and approval for over 60 subcontractors and suppliers, procurement of equipment and operating supplies, supervision and quality control for electrical work, and implementation of CQC / Health and Safety program. Health & Safety Management included conducting daily safety briefing, performing safety inspections, and reporting.

U.S. Department of the Army Public Works, Provide Heating Oil Tank Spill Containment, Phase 2, Fort Lewis, Washington – Acted as Project Manager to retrofit 93 aboveground storage tanks (ASTs) and remove and dispose of approximately 20 underground storage tanks (USTs) at Fort Lewis, Washington. The project scope included retrofitting all ASTs with spill

containment devices, overfill alarms, and seismic bracing. Contaminated soils encountered during excavation activities were removed and disposed. Sampling and analysis of soil was performed to characterize contaminated soil and confirm remediation of contaminated excavations to within regulatory requirements.

U.S. Air National Guard, Vehicle Operations Parking/Building 116, Camp Murray, Washington – Acted as Project Manager to construct vehicle parking, paving, and parking sheds at the Camp Murray Air National Guard Station in Tacoma, Washington. The project included site demolition; installation of asphalt paving, site utilities, concrete slabs and footings; erection of pre-engineered metal buildings; and electrical work. Responsibilities included maintaining project schedule, subcontractor and supplier agreements and coordination, quality control, and supervising field work completed.

U.S. Air Force, EC Skimmer Repair, 'A' Street/EC Install Oil Water Separator Outfalls, Building 1150, McChord Air Force Base, Washington – Acted as Project Electrician to install a waste filtration system in the existing storm sewer system located upstream of the Clover Creek Outfall on McChord Air Force Base in Tacoma, Washington. The project included installation of oil/water separators, oil skimmers, a waste oil storage tank, a grit chamber, pumps, over 1,000-linear feet of piping, and site restoration. Electrical activities include installation of 500-linear feet of underground conduit, 1,500-linear feet of high voltage electrical cable, and 2 pad mounted transformers. Responsible for installation of all electrical components, contract compliance, inspection, certification and testing of all electrical components and electrical demonstration and system training of Air Force personnel.

U.S. Navy, Improve Shoreline Recreation Area, Jackson Park, Washington – Acted as Project Electrician to expand an existing park situated on the shoreline of Puget Sound (Ostrich Bay) within the Jackson Park Naval Housing Facility. The project included installation of new park facilities, including basketball, tennis, and sand volleyball courts, picnic facilities, and a bicycle and walking path. The new bicycle path replaced an existing roadway along the shoreline, and the new ball courts upgraded a former ball court and unused building foundation site located at the north end of the site, near the picnic facilities and an existing baseball diamond. The project included installation of automatic sprinkler systems, landscaping and hydroseeding throughout the project area. Electrical activities included installation of new street lighting and lights for the ball courts.

U.S. Corps of Engineers Seattle, Washington, Fort Lawton USARC/OMS – Acted as Project Electrician providing demolition of existing facilities, the construction of a 8,200-square foot maintenance facility, underground utilities, street lighting, oil water separators, tile grading and asphalt of new roads. Responsibilities included contract electrical bid review and coordination.

U.S. Air Force, Aircraft Hangar Renovation, March Air Reserve Base, Riverside, California – Acted as Project Electrician on project involving upgrades to an aircraft hangar including construction of offices and maintenance areas, and fuel cell maintenance facility construction. Responsible for installation of electrical components associated with the renovation work, contract compliance, inspection, certification and testing of all electrical components.

Alaska State Department of Transportation, 1997 Storage Tank Replacements, Anchorage International Airport, Anchorage, Alaska – Acted as Utility Installation Supervisor for underground storage tank removal and replacement at the Anchorage International Airport Maintenance Facility. Project involved utility demolition and replacement of utilities in conjunction with the removal of underground storage tanks and contaminated soil remediation.

**Past
Experience:**

Project Supervisor for Emergency Utility Repairs, McChord Air Force Base, Tacoma, Washington. Project involved full electrical recovery of the base following three consecutive ice, snow and windstorms. Coordinated all customer input and assigned work for multiple work crews.

Project Supervisor for Restoration of Airfield Approach Lighting, McChord AFB, Tacoma, Washington. Supervised demolition and replacement of sixty 30-year old airfield approach lights to meet Federal Aviation Administration requirements.

**Certified
Training/
Registration:**

- 40 Hour Hazardous Waste Operation/Emergency Response (29 CFR –1910.120)
- Construction Quality Management for- Contractors, U.S. Army Corps of Engineers
- United States Air Force On-The-Job Training Trainer/Supervisor
- ENCAMP (Environmental Compliance and Management Program)
- Qualified for hazardous waste and asbestos site work.
- CPR Certified
- Confined Space Entry Training (29 CFR – 1910.146)
- Standard First Aid
- Contractor Quality Control Course, U.S. Army Corps of Engineers

**Academic
Background:**

Community College of the Air Force - Completed two years
United States Air Force Non-Commissioned Officer Academy - Conceptual Human Behavior, Management Techniques, and Problem Solving
United States Air Force Non-Commissioned Officer Leadership School - Studied human resources management, applied principles of planning, organizing, and supervising, personnel
Lineman in the US Air Force (21 years)
Electric Power Line Specialist Course

Mr. Wood has 27 years in construction, 11 of them in environmental remediation.

Education

Dallas County Community College, Business Administration, 1976

Certifications and Industry Training

- Asbestos Contractor/Supervisor, 1989
- NIOSA 582, 1991
- Hazardous Waste Operations, 1992
- Scaffold Building, 1992

Selected Experience

- Legacy Partners, Project Manager, Legacy Tower
- Brookfield Properties, Project Manager, Colorado State Bank
- General Manager for various commercial and industrial clients on projects ranging from \$25K - \$6M
- Public Service Company, Operations Manager, Public Service Building
- US Air Force, Project Manager, Tinker AFB Boiler House
- APREA Partners, Project Manager, Continental Plaza
- Texas Utilities, Project Manager, Big Brown/Power Station

Employment History

- Creative Builders, Operations Manager, Dallas, Texas
- NSC Corporation, General Manager, Denver, Colorado
- ACandS, Construction Manager, Denver, Colorado
 - Project Manager, Colorado State Bank
 - Project Manager, Legacy Tower